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Interpretations of the 1923 Code

THE 1923 edition of the National Electrical Code has been issued and is now being distributed. Announcement to this effect was made in the columns of the Journal of Electricity, issue of Dec. 1, 1923.

Owing to the fact that there have been several radical changes in some of the rules and many important additions, there will be numerous questions arising regarding the interpretation of the Code's provisions. The questions have formerly been directed to the National Board of Fire Underwriters or to some of its affiliated organizations; in the case of the Pacific Coast, to the Board of Fire Underwriters of the Pacific.

In the majority of cases, there are many duplications in the requests for information and interpretations, and in many cases the entire industry would benefit from the answers.

Arrangements have been made by the editors of the Journal of Electricity whereby Claude W. Mitchell, electrical engineer of the Board of Fire Underwriters of the Pacific, will answer these questions on the Code, giving full interpretation and instructions in the columns of this magazine. A section of the magazine will be devoted to this service.

Mr. Mitchell will be remembered as the author of the series of articles which have recently been published in the Journal of Electricity on the provisions and interpretations of the new Code.

Readers are requested to address inquiries regarding the Code and its rules to Mr. Mitchell or to The Editor, Journal of Electricity, 883 Mission St., San Francisco, Calif. If immediate answer is required, it will be necessary to indicate this fact in the inquiry, in which case reply will be made by return mail.

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A Key Link in the Chain

WHENEVER interest palls in the income tax, the soldier bonus, the Ruhr situation, or the eighteenth amendment, it is the conventional thing to break forth into diatribes against the middle-man.

AMATEUR economists entertain themselves and others with schemes demanding his elimination from the body politic. He is a parasite; he performs no useful nor productive function; he is a blemish on the face of industry; in short, let us wipe him from the industrial slate, and down will go the Demon H.C.L.

IN spite of all these onslaughts, the middle-man, the jobber in other words, continues to job. His elimination is slower in coming than twenty pounds of sugar for a dollar. This prompts the observation that if the jobber were all or any of the things that the amateur economist has said about him, he would have ceased to exist long before this.

ELSEWHERE in this issue, there is an article which tells what a jobber is, what he does, something of his responsibilities, something of his cares and difficulties. We hope that everybody will read, and learn, something of the jobber's functions, and of the useful part that he plays in the distribution of electrical products.

"THE jobber faces two ways," says this article. The truth of this is self-evident. He turns toward the manufacturer, toward the many manufacturers, on the one hand, and on the other toward the dealer. He bears a definite responsibility to each, and his function in both cases is such that neither could, or has been able to get along without him.

THERE are literally thousands of small, independent manufacturers of electrical specialties, who would be utterly unable to market nationally at all, without the intervention of the middle-man who presents the most efficient, and at the same time the cheapest stepping-stone between the manufacturer and the retailer that has thus far been devised.

THE jobber serves to reduce, rather than increase our old menace, the H.C.L. His method of distribution is far cheaper than anything that could be devised by the average small manufacturer working individually. His assumption of the normal credit risk in itself places him almost in the role of banker, as well as guide, counsellor and friend to the retailer.

"ONE easy step," as between the average manufacturer and consumer, without any intermediary, is a beautiful theory wrecked upon the fact of economic law.

As We Teach in the Schools Today, So Will the Next Generation Think

NEW Mexico, Colorado and Wyoming are blazing a trail in educational work that may well be followed by other Western states. According to figures compiled by the Rocky Mountain Committee on Public Utility Information, there are nearly one hundred high schools in the above-mentioned states in which the students are learning of the history and magnitude of the public utility business.

Officials of the various public utilities assume the role of lecturers, and appear in the classrooms, telling the story of public service.

This is a most interesting innovation in the new art, or science of public relations. The school authorities are no less concerned than the students. In some cases, complete series of lectures have been arranged, touching upon the many phases of gas, electric, telephone, and street railway enterprises.

In order to stimulate interest, a number of the utilities have offered prizes for student essays. These range from substantial cash sums to electrical appliances.

This general educational movement started in the colleges and universities, where lectures on the economics and social structure of the public utilities have been offered to undergraduates in various classes.

That electricity is destined to become perhaps the greatest factor influencing our daily lives is not too much to be said. What movement could be more beneficial or constructive than to bring about at least the rudiments of an understanding of the many factors that go to make up the modern public utility, especially among the rising generation? They will be the legislators, the regulating body, the operating and technical heads, as well as the voters of tomorrow. The quicker the young idea knows how to shoot, the greater the chance that he may select his mark with discrimination and hit it in the bull's-eye.

Where Municipal Ownership Invariably Hits a Snag

ONE of the problems of utility development which is receiving serious consideration on the part of executives, particularly here in the fast growing West, is that of service extensions. It is no unusual thing, in fact it is a common thing, for the cost of extensions to run into many millions of dollars each year. The estimated expenditure of a southern California telephone company for line extensions to care for new customers is announced as $19,000,000 for 1924. The extension program for any of the major western electrical utilities will show a condition analogous in every respect. And in most cases these expenditures are not immediately productive, but must be made in order to provide for future business.

Public ownership schemes are prone to overlook this important feature. It has come to our attention that one municipal railway is financing its extensions from depreciation reserves, while another publicly owned and operated electric utility is reported to be so far behind in the necessary finances for line extensions that many of these extensions are made only when the property owners seeking service will advance sufficient funds to pay the bills.

The people generally are loath to grant the politicians the right to spend money for something in the future. And the politicians are even more loath to spend money unless they can see votes which will either maintain them in office or secure more funds for public expenditure. Privately owned corporations, on the other hand, proceed with a vision of ultimate service and of community development, with a view at all times to provide service in order that it may be at hand when needed.

If Arithmetic Won't Solve This Problem, Try Algebra

PUBLIC ownership propagandists have been accustomed to dissert at length upon the "enormous" profits of the utility business, pointing with a greedy and jealous hand to the operating revenue which the annual reports show. They pay no heed to taxes, depreciation reserves, maintenance and extension funds and other heavy income-reducing factors. Nor do they even approach an attitude of fairness, for they persistently deny that publicly owned utilities should bear their share of the tax burden of the state or community, and they abhor the idea of rate regulation for such properties. Without equal operating restrictions there can be, of course, no equality of comparison of results. The public should be impressed with the idea that comparisons of rates and service in cities where municipal ownership prevails, with cities where private operation under public regulation obtains, is meaningless. Such comparisons have no more sense than the schoolboy's statement that because "a man and a half digs a hole and a half in a day and a half, then six apples must cost ten cents."

Eat Toast, Only Make It Electrically

UNDER the direction of the Wheat Council of the United States there is being conducted a national toast campaign, urging more people to eat toast. Many allied food groups are actively cooperating in this campaign. The electrical interests, including central stations, manufacturers, jobbers and dealers are also participating in the drive. Altogether there are twenty different groups of business tying into the campaign.

The advertising of the bakers, grocers, yeast manufacturers, restaurants, creamery companies and many others creates a big demand for toasting appliances. Such an opportunity for bringing electric toasters before the public with a smashing union of advertising forces, has seldom, if ever, been afforded the electrical industry.

The argument so far as this industry is concerned is this: "Every wired home should have hot toast on the table. Toast it electrically." In many localities the electrical interests have taken advantage of this opportunity, have cooperated with bakers

and others and have sold toasters. To give some idea of the tremendous force behind such a campaign, something like 50,000 toasters were sold in a few of the larger eastern cities. Here in the West such campaigns have been put on in only one or two cities.

With the Wheat Council bringing bakers' wagons, grocers' windows, newspaper and magazine pages, billboards, etc., with all their advertising power into one associated effort to tell the public about toast and its many uses, much toaster business will result.

Every electrical dealer and central station has an opportunity in this campaign. "Eat More Toast" is being heralded in every nook and corner of the country. Line up the allied interests in your community and put on a "drive" locally. Put an electric toaster in every home in your city.

Electricity Has Had an Important Role in Expanding Human Service

THE extent to which inventive genius, making possible enlarged production per worker, has stimulated industrial production in America was recently discussed by Julius H. Barnes, president of the Chamber of Commerce of the United States. Among other things, Mr. Barnes pointed out that in the steel industry, one or two men with mechanical unloaders, replace twelve to twenty unloading by hand; in the clothing industry, six men operating two boarding machines replace twenty; in the glass industry one bottle making machine replaces 54 workers and in coal mining an automatic conveyor with twelve men replaces 150. These are but a few of the instances which were cited in industries ranging from the production of steel to bread baking and the manufacture of books. One point which Mr. Barnes overlooked is the application of electricity to this machinery, an application which is directly responsible in many instances for the great saving in manpower. Few other factors have had a more important bearing on social relations or done more toward raising the economic status of the country than has the development of a cheap and abundant supply of electric power.

We Can Be Sure of Nothing Except Death and Taxes—Especially Taxes

SENATOR BORAH, in a recently published interview, remarked in effect, that the question of soldier bonus was inseparably connected with that of taxation. In other words, that none could be consistently for soldier bonus, and, at the same time, for a reduction in our income taxes.

The vital point raised by Senator Borah was that whatever is done, somebody must pay the bill. This disagreeable little fact is one of the greatest stumbling blocks in the way of government-owned and operated public utilities, and, incidentally, is a point that the most perfervid orators in favor of such action touch upon not at all.

Sooner or later, we hope sooner, steps will be taken to remove certain if not all securities of government issue from the tax-free list. It has been proved many times that such securities make for almost unlimited extravagance in alleged civic improvements, and, at the same time, reduce tax receipts and place a definite restraint upon the progress of industrial development.

Mr. Mellon has called attention to the reduction of tax rates as a means of producing more rather than less revenue from taxation. This seeming incongruity is an established fact, however, in merchandising anything; witness the Ford motor car, as a case in point.

"Let us tax the g-r-r-eat, and g-r-r-asping power companies that sap the life blood of the poor," says the soap box orator, with fine fury and frantic gesticulation, hoping that his audience may be deluded into the belief that such a course will produce lower rates for light and power. If he would howl for lower taxes, which would permit lower rates, that in turn would increase consumption, he would be talking a certain amount of sense. But then, if he did that, he would no longer be a politician.

Need for Standardization of Electrical Appliances

MANUFACTURERS have spent many millions for appliance design and construction. Countless dollars have been spent in promotion, not only of apparatus already manufactured and standardized, but in bringing out new styles and types of apparatus. Very often these new styles and types have almost duplicated existing models.

This has resulted in a long line of models, duplication of sales and publicity effort, increased manufacturing and promotion expense and higher cost to the dealer and consumer. A barrier has been erected against the ready sale of certain appliances, sales have suffered and, in many cases, the effect has been unprofitable or disastrous for manufacturers who have been compelled to absorb heavy replacement or adjustment losses.

While all this has been going on, the public and the dealer—who is really the medium of communication between the public and the manufacturer—have been clamoring, on the one hand for lower prices of appliances, and, on the other hand, for increased profits.

In mapping out production and other plans for the new year it may be well for manufacturers to give heed to this phase of their business and to consider if there is not a possibility of eliminating certain stock numbers which are, in effect at least, duplications of other numbers. This will result in lowered costs of manufacture due to increased production of the remaining models, will remove the necessity for carrying increased numbers of parts for repair or replacement, will help to reduce sales and other attendant expenses, will keep jobbers' and dealers' stocks in healthier condition and will increase turnover. At a time when other industries are working toward standardization as a means for decreasing manufacturing costs, it would seem well for the manufacturer of electrical appliances to do likewise.

CURRENT COMMENT

When Electricity Is Used to Light the Fish

It is a far cry from fish to kilowatts, but perhaps some imaginative member of the electrical industry can prove that the newly discovered fish described in the editorial below derives the power which illuminates it from some of California's hydroelectric energy. Its shouting may also be ascribed to radio. Because it serves to indicate the extent to which California and the West in general has advertised itself, and because it is certain to give the reader an opportunity to smile, if not to laugh, it is reprinted here. The editorial is taken from the New York Times.

California, which gave the world the one-piece bathing suit and made the bathing girl an institution without which no home is complete, has just produced another marine marvel. Its name, according to a professor who described it to the Federation of American Societies for Experimental Biology, is poric thysnatatus, but it is better known to its neighbors as the Illuminated Shouting Fish.

Without wishing to invade the field of biologists, or to attempt profane explanation of the slow mysteries of evolution, one may hazard the guess that this was a mere fish, dark and silent like most other fish, in the old Spanish days before the arrival of those who became the first American Californians. From his retreat in the coastal waters the fish saw what happened to the leisured Spanish rancheros, who were content to be worthy without advertising their worth to the universe. Where are they now? Poric thysnatatus, discovering that only the fittest survive, put on protective coloring and adapted himself to the changing times in California. Now he swims about wearing 350 gleaming phosphorescent lights, like a Hudson River boat. No Californian ever hid his candle under a bushel, not even a California fish.

But light alone is not enough. All the senses must be assaulted. Poric thysnatatus, the professor tells us, shouts violently as it leaps on the little fish and consumes them. The lesson of the California realtor is not in vain. California is a great state for people who can adapt themselves to their environment, but it is no place for little fish.

Misinformation Regarding Superpower

There are grounds for the grave fears expressed by certain members of the electrical industry that the public, unless properly informed, will grasp a wrong interpretation of the superpower agitation that is sweeping the country. While there has been considerable newspaper comment about this movement in the municipal ownership journals, there has been little or nothing about the benefits which will accrue from the interconnection of the existing power systems. Some idea of the misinformation which is being placed in the hands of the public by uninformed and dictatorial newspapers may be gained from the following quotations from an editorial which appeared almost simultaneously and with but few changes in the San Francisco Examiner, the Los Angeles Examiner and the Seattle Post-Intelligencer:

There is a movement well advanced, in Washington, in California and throughout the United States, which thoughtful people will regard with fear.

A combination of all the electric power concerns in the United States into one Supersystem.

The "superpower" movement is real. It is discussed in every meeting of electrical engineers, and is declared to be—from the point of view of giant finance—entirely practicable. It has passed the first stages of whispering, of inner-circle discussion, and is now beginning to emerge in the form of veiled propaganda printed in commercial and technical publications.

Readers need not be told that the superpower trust would be immeasurably the hugest trust ever organized!

It would be as much greater than, for instance, Standard Oil, as Standard Oil (regarded as a unit) is greater than some back-yard petroleum concern.

Such a trust would hold America's manufacturing, America's irrigation, America's transportation, America's residential development, in the hollow of its hand as Goliath might have held four pebbles from David's sling.

Physically, the plan calls for a linking of the main power lines of all private power companies, so that electricity, generated at a thousand points, could pass back and forth from system to system, supplying America's whole usage of electricity from a single national spider-web of wires.

The public will be the fly in that spider-web.

And it may here be stated that such a linking is easy to achieve.

It WAS achieved, in many states of the Union, notably California, during the war, by federal order.

It IS achieved, in part, in several Far Western states today, in Washington, through the system of interconnection by which "rival" private companies supply each other mutually with what is called "stand-by" service. All that is needed is an extension of such connections.

A recent issue of Public Opinion, a weekly bulletin frankly devoted to propaganda for power companies and other utility corporations of this state, says:

> It already exists in the Northwest. When the systems of the Puget Sound Power & Light Company, the Washington Water Power Company, the Pacific Power & Light Company and the Montana Power Company effected interconnection, as they have done, a great superpower was created in the Pacific Northwest, stretching a thousand miles east and west with 5,000 miles of transmission lines and a combined capacity of 500,000 horsepower. The Northwestern states are already superpower states.

Financially, such a supertrust will be, to put it plainly, the most terrible money tyrant—the most appallingly all-dominating dictator of stock markets and bond markets, of banks and credit, of politics and the press, of human thought and human life itself—that this little world has ever seen.

The "Superpower" movement is afoot.

It can be opposed, can be halted, can be frustrated only by one thing—**public ownership of water and power.**

The first overt propaganda, now being spread, looks toward the formation of regional supertrust units that can later combine. And—

The first of these units, as scheduled by the power interests, is to be the Pacific Coast.

Read, as an indication, the leading article in the Commerce Monthly for December, 1923; said monthly being published by the National Bank of Commerce in New York. The article is entitled: "Industrial Development of the Pacific Coast." After bringing out the fact that this Coast has little coal, the article proceeds:

> Superpower is now the hope of industry beyond the Rockies. Sufficient hydroelectric energy for all probable industrial demands is at least in sight, if not yet developed.
>
> Water power is already harnessed with an interconnecting network from Oregon to California to create a reservoir of electricity supplying many communities. * * * Forty per cent of the potential water power of the United States is in the Pacific division and thirty per cent in the mountain division.

And in the publication of a bond house with New York connections, under date of Dec. 10, 1923, we find a bitter attack against public ownership of power:

> The private corporation has always and inevitably an advantage in production costs that will far more than counterbalance the supposed benefits of "sale at cost" so loudly brayed about. * * * The battle will never finally be won until the public is educated.

Educated—to what?

To look submissively on while already huge private power interests merge into the "superpower" octopus for perpetual profits, perpetual dominion, a perpetual orgy of superfinance!

This is the dizziest dream ever dreamed by the kings of wealth.

The one thing that can prevent that dream from coming true is **Public Ownership of water and power.** And delay means defeat.

Practical Public Ownership of Power Utilities

The electrical press and the electrical industry have made the statement that customer ownership offers a practical solution to the municipal and government ownership problem. It should be gratifying to note that the idea has been taken up by the press and it is to be hoped that the public itself will soon recognize the possibilities of such ownership. The following editorial is taken from the Los Angeles Times where it appeared under the title of "Popular Ownership."

To have a direct interest in the heat and light and power and transportation, so essential to every citizen in modern life, is a laudable ambition. How can he best realize it?

Professional politicians would have the people believe that government ownership or state ownership or municipal ownership affords the private citizen the best method for acquiring such possession. They have harped so constantly on this theme that many suppose the consumer has no chance to share in a public utility except through the philanthropy of the professional politician.

But is this so? No matter of public polity deserves more earnest consideration. For on the efficient development and impartial distribution of the mighty forces of nature—especially in the form of electrical transmission—hangs the economic future of our country.

In a democratic community the ownership of conveniences used by everyone should be placed on a popular basis. This should be done as far as is compatible with sound business management. But when the politician comes in through the door business goes out at the window.

Therefore, we must discover some better way than state ownership for placing the control of public utilities in the hands of the people, so as to bring the greatest good to the greatest number. That way has already been found and is being universally extended.

Private ownership of public utilities is today as much a contradiction in fact as it is in terms. Consumers can own—and to a large extent do own—the heat and light and power and transportation systems that the advocates of political ownership still persist in calling the property of private corporations.

Moreover, they can own them in a broader and more satisfactory manner than by handing them over to the cliques and rings that control municipal and state governments. They can own them directly as shareholders instead of indirectly as voters; they can own them from the inside, instead of from the outside.

In California the big public utility companies have long had a program for taking the public into their confidence. The idea has been so popular that it has spread across the continent. Whatever desire there may have been prior to this for municipal ownership is fast fading before the better plan of cooperation.

The public utility companies of California offer the consumer a share in their ventures on terms within the reach of every worker. The shares are as low as $100 each and may be paid for on the installment plan. In fact, to become a part owner—however humble a one—in the big hydroelectric enterprises of the West is no more difficult than starting a savings account.

Thus the people as a whole are becoming the corporations denounced by the politicians who favor the more restricted municipal or state ownership. When every man or woman who uses heat or light or power owns a share in the plant that produces it the politicians will have a difficult job to persuade them to abandon their property to any state or city government.

And there are very few consumers in Los Angeles who could not afford to buy a share in a public utility corporation on the installment plan.

The Farmer and Municipal Ownership

It would seem that the rural districts and smaller communities will be forced to assume a severe handicap as the result of the municipal ownership projects which are being launched in some of the cities on the Pacific Coast. In allowing such ventures to go through without protest these districts are overlooking the item of increased taxation which will ultimately result. If the properties of a public service corporation which are not only taxable but also heavily taxed, are taken from private hands and placed under municipal control, they are immediately placed in the tax exempt class. The revenue which goes to the county and state government must then be derived from another source. The logical victim is the general public. While those in the city which has municipal ownership pay their share of the increased taxes, the citizens in districts which do not receive power from the municipal plant must help pay the bill. This point is admirably brought out in a recent editorial in the Lynden (Wash.) Tribune. The editorial follows:

Us country jacobs don't get a chance to vote on Bellingham's proposal to take over its lighting plant, but we are directly interested. If the plant becomes a municipal one, it will be dropped from the tax rolls, and county levies will go up proportionately. We'll pay higher taxes without having any vote in the matter just now.

The Puget Sound Power & Light Company in 1922 paid $55,037.77 in taxes on its Whatcom County properties, approximately one-fifth of the current expense budget of the county. It is now paying more taxes into the treasury of Whatcom County than any other property owner, exclusive of trans-continental railroads.

Whether Bellingham benefits from such a move or not, it is easy to see the loss that the country districts will suffer by making such properties tax-exempt. Seattle's venture into the street railway field meant a deduction of millions from King County's tax roll, and an increase of levies for the farmers of that county who are benefited not a penny's worth by the fact that Seattle folk now pay more than eight cents for a five cent ride on their own system, which is now operating under a million dollar deficit. The fifty million dollar investment of the City of Seattle on its power plant in Whatcom County would be a healthy addition to our assessed valuation if the project were not tax-exempt.

All of which leads us to the conclusion that if a group of citizens of this state, whether banded together in a city or as stockholders in a corporation, wish to purchase and operate valuable properties, they should pay taxes on them in fairness to the other group of citizens. A ringing demand to this end should be presented by the country districts to the next legislature.

Smile

SERVICE with a smile,—there is a goal to be attained by the electrical industry, which, once reached, will give it a rightful place in the sun, secure in the hearts and minds of the public. These smiling, courteous officials are truly representative of the electrical industry of today. Each smile connotes pleasure in serving the public. This pleasure of service is the keynote of his public relations. It is not surprising, therefore, that the people, in response, carry home with them the agreeable flavor of good [illegible]. They bring him their business again. And when one impugns his motives or threatens his welfare, they take his part and defend his cause because they have confidence in his fairness and good intent.

How much better is a smiling countenance than one masked in a Napoleonic frown. It breathes the spirit of sunshine, good fellowship, tolerance of the other fellow. It smoothes out misunderstandings, spreading human kindness among all those with whom it comes in contact, whether fellow worker on the inside or customer on the outside.

This winning by a smile is a truly human method of success,—a method worthy of adoption by all of us, so smile, bless you, SMILE!

The Courteous Service Club Movement

By R. A. Balzari
Manager, Industrial Department,
Westinghouse Electric & Manufacturing Company, San Francisco

THE Pacific Coast Electrical Association has devised a plan to capitalize upon the smile as a means of bettering public relations. It plans to organize a Courteous Service Club the membership of which will include every member of the electrical industry in California. In this article Mr. Balzari describes the program which has been prepared.

SERIOUS consideration of public relations is a comparatively recent innovation within industrial organizations. It is a great many years since the late Commodore Vanderbilt enunciated his own ideas as to public relations with the expressive if inelegant phrase, "The public be damned." The public, however, refuses to do anything of the sort, as the old-time reactionary has learned to his cost.

"The public be pleased," is the modern transposition of the public relations idea of three or four decades ago. So firmly has this latter idea taken root and so constructive has it proved to be that practically all great business and industrial enterprises have organized departments in the hands of specialists whose business it is to study the question of public relations in all of its dips, spurs and angles in order that the industry itself may discharge to the utmost its responsibilities to those whom it serves.

The Pacific Coast Electrical Association has a committee on public relations. This committee in turn has a sub-committee on employees' relations. The purpose of this committee is to point out ways and means whereby employees within the electrical industry can do their part in furthering the cause of better relations with the public. This committee has evolved an idea, which, if carried through to full fruition, cannot fail to have a marked influence upon the electrical industry in the West. This idea is not new; no new basic principle has been discovered; it has been rather in the way of directing renewed attention to something that has been with us always, to bring that something into greater prominence and to bring about a realization of what a splendid asset that something is to everybody who uses it. The particular something in question is the Smile. "Always with a smile" is the slogan of the Courteous Service Club. The message to everybody within the industry whom it is hoped to enroll in the club is expressed in the first circular as follows: "You can make yourself a better man, your business a better business, your craft a better craft, and your city and country a better place in which to live."

It is proposed, therefore, to organize a Courteous Service Club to which everybody and anybody within the electrical industry or contributing to the electrical industry is eligible for membership. There is no initiation fee and there are no dues. The obligation placed upon members is moral and psychological. The committee has prepared a descriptive circular, an enrollment blank and a membership card. There are 25,000 people engaged in the electrical industry in California alone. Ways and means are to be taken to bring the Smiles Campaign to the attention of every one of them in order that he or she may sign the enrollment blank, take out a membership card and become an active member of the Courteous Service Club, through the operation of which it is hoped to make the electrical industry in the West famous throughout the world as one wherein uniform courtesy toward one another and toward the public will always be observed.

Plans are under way whereby employees and central stations will have the Courteous Service Club brought to their attention through their various employees' associations. Descriptive material, enrollment blanks, membership cards in ample number, together with membership buttons will be sent to the employees' associations so that they may obtain nothing less than a 100 per cent enrollment in this great movement. Employees and associations of all manufacturers and jobbers will be reached through their associations by the same method, as is also true of electrical contractor-dealers who are affiliated with contractor-dealer associations. Electrical clubs and development leagues will be served with the literature and other material pertaining to this movement through committees within their own organizations. Contractor-dealers and other members of the electrical industry who have not been affiliated with any of the organizations mentioned above will be reached through jobber's salesmen, who in the course of their regular calls will draw attention to the Courteous Service Club movement.

In order to add zest and enthusiasm, a contest is to be inaugurated between the Los Angeles Electric Club and the San Francisco Electrical Development League by which a trophy will be presented to the club obtaining the highest percentage of members. This idea in turn will be presented before the membership of both of these organizations at meetings called for this purpose in the near future. Other organizations within the electrical industry will be used for spreading the idea. These will include the Oakland Electric Club, the San Diego Electric Club, the Long Beach Electric Club, the Sacramento Valley Electrical Society and the Santa Clara Valley Electric Development League.

The initial cost of preparing the printed matter, circulars, enrollment blanks, membership cards and membership buttons has been borne by the Pacific

What you as a member can do –
YOU can make yourself a better man—your business a better business—your craft a better craft—your city and country a better place to live.
Ours is an industry based on service. No matter what the executives may do, this service is measured by the attitude of the man who meets the public. It's the man at the counter—the man who comes in contact with the public, who determines our success in serving our fellow men. Service with a smile—there is a goal worth while.
As a member of the Courteous Service Club you can determine that every outsider who has dealings with you will go away feeling that the electrical industry is the most courteous in the world.
You can meet the public with a smile on your face that will make friends for you and your company—a smile that will prove that yours is a service of which the community may well be proud.
You can cultivate that good-natured disposition which will make you a favorite among your fellow workers.
He is worth more who does something as a private than he who does nothing at the head of an army.
Just so, though your work may seem unimportant, if you do it well and with courtesy it becomes more important than a greater task poorly and discourteously performed.
If you believe in your work, your fellow man and yourself, become a member and do your bit to make the electrical industry the courtesy industry.
Always with a Smile
Courteous Service Club
Always with a Smile
– a Big Job
from
to
"Always with a Smile"
This is to certify that
is a LIFE MEMBER of the Electrical Industry's COURTEOUS SERVICE CLUB.
"Always with a Smile"
Enrollment Blank
I believe the Courteous Service Club will be of great value to me and every fellow worker in the Electrical Industry—and hereby enroll myself as a member and pledge myself to secure other members to this Club.
No Enrollment Fees
No Dues
Name
Co.
Address
Enrolled by
"Always with a Smile"
This is to certify that
is a LIFE MEMBER of the Electrical Industry's COURTEOUS SERVICE CLUB.
The world has too much of this
Let's change it to this in the Electrical Industry
Always with a Smile
"Always with a Smile" That's the object of the Electrical Industry's
Courteous Service Club
A 100% COURTEOUS industry." That's what they'll say of the electrical industry when every man and woman working in this great field is an active and acting member of the COURTEOUS SERVICE CLUB.
It's easy to gain and keep up a membership. A sunny countenance will pay your initiation fee and a smile will pay your dues.
What the electrical industry needs is big-hearted, broad-minded, whole-souled, frown-free men of energy and action who can look a city or a man squarely in the face and smile.
"He profits most who serves best." And he serves best and profits most himself, who does a worthy work well and shows himself friendly to all he meets.
Courtesy is a habit. The habit of being useful, good natured and gentlemanly. It smooths over the rough places, cools anger, diverts criticism and builds good will. It makes life easier for yourself, those who work with you and those you serve.
It isn't hard to be courteous and cheerful. In fact it's the easiest way. It takes 48 muscles to frown and only 14 to smile, so why be grouchy and wear yourself out?
Keep the frown off your face. It is a symptom of a lack of will-power. A smile is the symbol of a purpose worked out.
We're not talking about a smirk, or a grin. We mean a real red-blooded smile that comes only from those who have confidence in themselves and their work and are so glad of it that they have to let the rest of the world know it.
A smile is cooler in summer and warmer in winter than a frown. To be grouchy is to be shunned and disliked, to be good-natured is to be popular, to be popular is to be noticed—to stand out from the crowd—to be successful.
We all have to work in this old world so why not get all the kick we can out of it? Why not go smiling through the day's work, moving forward and making friends as we go?
And remember, too:
"It's easy enough to be happy
When life runs along like a song
But the man worth while
Is the man with a smile
When everything goes dead wrong

SAMPLES of some of the literature to be used in connection with the Smiles Campaign of the Pacific Coast Electrical Association. Above and below is the folder describing the Courteous Service Club and its aims. In the center are facsimiles of the enrollment blank and membership card of the Club.

Coast Electrical Association from that portion of their budget allocated to public relations work.

Posters also are to be provided for placing on the walls in the places of business of electrical concerns of all kinds as a reminder that the Smiles Campaign is not a temporary movement to go up like a rocket and come down like a stick, but it is hoped that the idea itself will so impress itself upon the minds of everybody that the courtesy idea expressed through the smiling countenance as an indication of his or her pleasure in rendering the service, may become an integral part and an outstanding characteristic of the electrical industry.

Smile and the world smiles with you; grouch and you will be alone!

All who enroll as members of the club will be supplied with a small red button showing the smiling half-moon face and these buttons are to be worn during the entire campaign. These buttons are to be reminders of the club members' obligations.

Store Arrangement Aids in Merchandising Electrical Appliances

By D. D. McFarlane
Sales Manager, Newbery Electric Corporation, Los Angeles, Calif.

THIS article should be of considerable assistance to those who contemplate the opening or the rebuilding of an electrical store. Mr. McFarlane has had many years of experience in store management and has embodied in this paper the practical knowledge which he has gained and which he offers as a guide to others for store arrangement.

DURING the last few years the merchandising of electrical appliances has been developed to a greater degree than it had been in the previous fifteen years. This is particularly in evidence in southern California, and it is with pleasure that we note the opening in every town and city of carefully planned and beautifully appointed electrical stores. First and most important, perhaps, are the store windows, as it is necessary first to get the customers' attention. Naturally, the size and plan of the building affect the particular shape, or design of the windows, but some principles remain the same and will be necessary in the design of all window displays. In displaying electrical goods the floor of the window should be about 16 in. above the sidewalk level. This allows the smaller articles—such as irons, percolators, toasters, etc., to make a good display in the front window, while similar articles may be displayed on pedestals in the back of the window to build up and complete the display. Also, this height of floor will be found to be correct for displaying larger articles, such as vacuum cleaners, fans, heaters and even washers and ironers.

Oak floors in natural finish are perhaps the best kind to use, as dark plush drapes, needed to display the nickel goods, show good contrast on light oak.

Proper lighting is most essential, and care should be taken to see that the light is evenly distributed, with provisions for color lighting and spot lights. Arrangements should be made for plenty of light—about 200 or 300 watts per sq. ft. would be correct for this class of merchandise. An ample number of duplex convenience outlets should be installed in the windows in order to permit operation of devices on display.

Next comes the entrance to the store, which should be inviting. The doorway should be wide and with as little slope as possible and by all means any step up should be avoided. The appearance of the store as the customer first enters is the next important thing to consider. The general layout should be properly balanced so that it does not have the appearance of having all the display on one side.

An excellent example of a well arranged store is that of the Newbery Electric Corporation, Los Angeles. The following explanation of this store and the manner of display, with some of the reasons for so doing, will be interesting to all dealers.

The store is 21 ft. wide by 100 ft. long, and as will be noted by the picture, the windows are 17 ft. deep from the sidewalk, and average 6 ft. from glass to side walls, which leaves an 8-ft. entrance.

The wall cases were placed on the left side of the store, because a row of pillars was on that side and the wall cases to some degree covered them up. Some store planners claim that the display cases and wall cases should be on the right-hand side as most people turn to the right and look to the right on entering a store. However, this arrangement has not proved disadvantageous. In front of the wall cases were placed glass display cases, leaving a 32-in. aisle for serving.

The first 17 ft. of glass wall cases is for the display of percolators, toasters, grills, and the like, with a display case directly in front, containing irons, heating pads, waffle irons, etc., so that all this class of merchandise is confined in one section. Next is the lamp section, with a display case in front of it, containing sockets, plugs, fuses, and all small articles. This case is divided into sixty small compartments, which, as may be seen by the photo, makes a handy and attractive display of the much sought after odds and ends—the names of which the customer never can remember.

The third section is for the display of radio sets, loud speakers, and other bulky radio goods, with a show case in front showing the smaller but expensive radio parts, such as variocouplers, variometers, meters, transformers, etc.

In the fourth and last section are displayed and carried for stock small radio parts, such as tubes, transformers, batteries, sockets, etc., and in the case in front of this section are sixty small compartments for the very small radio parts.

The pillars referred to before divide each section and in front of each was placed a mirror door; odds and ends, such as iron cords, etc., are kept behind the doors. In the above described display all articles are under glass, so that much of the labor of keeping the display clean has been eliminated.

The right-hand side is used for the display of the larger appliances. To balance the store this side was divided by using low portable partitions, extending 6 ft. from the wall at positions directly opposite each division on the left-hand side. The first division is used for demonstrating vacuum cleaners; the second section is for washing machines; the third for ironers; the fourth for ranges. This, briefly, is a description of the store planning. The reasons for this particular arrangement follow:

AN inviting entrance and attractive merchandise display have been arranged by the Newbery Electric Corporation at their new store in Los Angeles, Calif. The store arrangement facilitates business operations.

First, a store should be symmetrical, or in balance, with all cases placed directly in line and equally spaced. This applies to all classes of merchandise. The placing of the percolators and nickel goods in the first section is to create a favorable impression upon entering the store; also, it shows from the sidewalk, and makes the store more attractive.

The lamp section next: As this is about the only repeat line the electrical merchant has, it should be placed back so that the customer will have to pass other lines when entering and leaving. The slogan of the Edison Lamp Works has proved true in all electrical stores—"All the window some of the time, and some of the window all the time." This should be remembered and put into use. The possibilities of developing lamp sales seem almost without limit. Numerous ingenious plans have been worked out by enterprising dealers and their success written in increased profits. Every wired building is a prospective customer for lamps and the tendency is to buy in package lots, rather than one or two at a time. This reduces the dealer's handling charge and therefore increases his profit. It is rarely more difficult to sell a carton of lamps than it is to sell one single lamp. The effect on a dealer's profits is best realized by those who have devoted special attention to this part of their sales.

The radio department was placed at the rear, because this is an electrical store and the public regards it as an exclusive electrical store and not as a store with electrical goods as a side line. Radio being electrical merchandise, it should be handled by the electrical store; if properly handled it will greatly help the electrical dealer in building up his store trade. It is a new line and will require selling different from that used in handling the merchandise dealers have sold for years. Electrical merchandise is a labor-saving line; it has always been sold with that idea uppermost in one's mind. The radio line is an educational as well as an entertaining line of merchandise and the appeal to the customer must be made in that direction. Radio merchandising has now developed into two separate and distinct classes of business—first, the parts business and, second, the completed set business. They are entirely different in nature and must be classed separately, and, where possible, sold by different sales people.

The reason for this is that the parts buyer is a different class of customer from the completed sets buyer and looks upon radio from a much different angle. He is of the inventive, scientific type, who knows the parts, their values and uses; the parts salesman, then, must also be of this type so that he can understand his customer and assist him in designing his set and explaining the results he should obtain.

The completed set buyer sees radio in a different light, and he is not interested in what makes the set work, but in what results he will obtain in entertainment, educational value, tone quality, ease of operation, etc. For him technical names of parts must be left out of the sales talk; therefore it is necessary to have a salesman who can see his viewpoint and forget what is inside the completed set. The separation of the two lines is necessary, and makes selling for each department much easier. The display of completed sets is in a separate room, as shown in the accompanying picture, and has proved very satisfactory. In this room each set is connected and ready to tune in, so that a demonstration of actual results of receiving can be had on each and every type of set on display.

The larger electrical appliances should be displayed connected and ready for operative demonstration. This does not mean that clothes must be washed and ironed, food baked, dishes washed, etc., in the store, but all appliances should be ready to prove that they will run and work properly. For this reason there are connected and ready for use vacuum cleaners, washers, ironers, ranges, dishwashers, air heaters, and a 24-gal. electric water heater—the dishwasher and water heater being connected with the sewer so they can be operated properly.

The display of price cards, both in windows and store, is necessary as it is found in the electrical business that the public often thinks that electrical goods are high-priced. They are agreeably surprised to find that such a beautiful percolator, toaster, grill, etc., can be purchased for so low a price! The popular fallacy regarding the high prices of electrical merchandise has too long existed and must be broken down. One of the best ways to overcome this idea is by the liberal display of price information. Price cards should be neat and attractive and preferably of a distinctive design. This price card in itself offers a splendid opportunity for the advertising of electrical merchandise and appliances and other devices may be advertised at seasonal times.

During the daytime a well arranged store with attractively dressed windows will draw the attention of passers-by but at night some other means of attracting attention must be employed. No better way of advertising the location of a store can be found than the electric sign. Every electrical dealer should have such a sign and should furthermore keep it lighted during the hours of evening traffic. It is especially important that electrical stores should have electric signs not only for the advertising value of the signs themselves, but for the effect on merchants in other lines of business. A shoe dealer, for example, can hardly be expected to have confidence in electric signs if the local electrical dealer does not himself use one. This store uses two electric signs, one over the sidewalk and one on the front of the building. They are both as wide and long and high as the law allows. In addition, on each window the firm name is painted in gold, and then again, it is cut in the marble entrance. This store is proud of its name and presents it boldly to the world. Every dealer should do the same—electrically. Electric signs have too often proved their worth to require comment as to their value. No other single means has been found so effective in drawing people to a store at night as an attractive sign, whether it be merely a name sign or one with characters, figures or symbols. Moving or flashing signs are, of course, of much greater value than still signs but any attractive illuminated sign will earn its cost many times over.

The Position of the Jobber in the Distribution System

By E. A. Kincaid
Associate Professor of Commerce, McIntyre School of Commerce, University of Virginia

WHY does the jobber occupy such an important place in the distribution of electrical products on the Pacific Coast? What are his responsibilities to his principals and his customers? Is he functioning as he should? These are some of the questions which Mr. Kincaid answers in this important and interesting article in his series.

FOR the purpose of this discussion the term jobber will be used as synonymous with wholesaler. Such is not always the use of the term, for in some industries there are jobbers who stand between the wholesaler and the dealer, but this is not the case in the electrical field on the Pacific Coast. The electrical jobber is a recent addition to the jobbing profession, but he has the traditions and practices of an old and honorable business to fall back upon, for wholesaling came into existence with the rise of the factory system about 1760.

Distribution through jobbers requires a volume of business of such proportions that the manufacturer must find his market over a wide area. Under such conditions it becomes necessary to find a large number of retail outlets, and for this purpose the jobber functions more effectively than most manufacturers. Thus it appears that the jobber came into being as the result of the same economic forces that brought about specialized production for a constantly increasing market. In other words, jobbers exist because, taken as a whole, they perform an important and indispensable economic function. There are jobbers and jobbers, but taken in the aggregate they are a distinct part of our marketing system, not as the result of mere chance or accident, but solely because they meet an economic need and do it well.

The economic importance of the electrical jobber is not in the least open to question for there are (1921) upwards of 1,333 electrical manufacturing establishments with an output valued at $883,985,000. Moreover, these establishments are largely centered in five states, 73 per cent of the production (in value) coming from the states of Illinois, New York, Pennsylvania, Ohio and New Jersey. The concentration of the industry in these states goes far toward explaining the necessity for jobbers. Few manufacturers are powerful enough to cover the markets of the entire country and without the aid of wholesale distributors the problem of reaching the market in such distant regions as the Pacific Coast would be difficult in the extreme. It is true that manufacturers of some lines both in and out of the electrical field are reaching the market over the head of the jobber. It is also true that jobber distribution has come in for much critical discussion. But the fact is that electrical jobbers are as firmly established as those in most other lines and confronted with problems that are only a little more serious than those faced by jobbers in other fields at some time or other in their history.

The jobber has been defined as a merchant who buys goods in large quantities and wide variety from manufacturers and sells them to his customers, usually retailers. With respect to the electrical industry, this definition requires a good deal of amplification. In the first place, there are several varieties of jobbers to be found in the electrical industry as it is developed in Pacific Coast territory. (1) There is the large jobber operating in Coast cities with branch offices in outlying places. (2) There is also the large jobber with branch offices and equipment to give engineering service. (3) Then we have the small jobber with an organization of no more than local influence in Coast cities, and (4) large jobbers located in inland cities. (5) Small jobbers operating in inland cities, and (6) retailer jobbers who are trying to grow out of the retailing business into the jobbing business must be differentiated from the others. (7) There are also western branch houses functioning as jobber outlets for eastern manufacturers, and (8) hardware jobbers with electrical departments.

This classification is based mainly upon power in distribution and when the importance of this matter is considered the distinctions are not unduly labored. While a jobber is a jobber, there is a vast difference in their power to cover the market which may be regarded as falling within a jobber's territory. There are always two questions for the manufacturer to consider: (1) What territory does the jobber cover and (2) how well does he cover it? The jobber offers the manufacturer an outlet to a given market. Just what the market may amount to is, to a large extent, determined by the nature of the outlet, its financial strength and the intensity with which it covers the field. When the work of the jobber is considered from this angle the foregoing classification has meaning.

Jobbers may also be classified with respect to control or ownership. There are jobbing corporations the capital stock of which is owned by manufacturing establishments. There are electrical jobbing concerns which are independent of such control. Again, there are electrical jobbers who are nominally independent of any electrical manufacturing concern, but actually far from independent because of credit relations with manufacturers. In the next place,

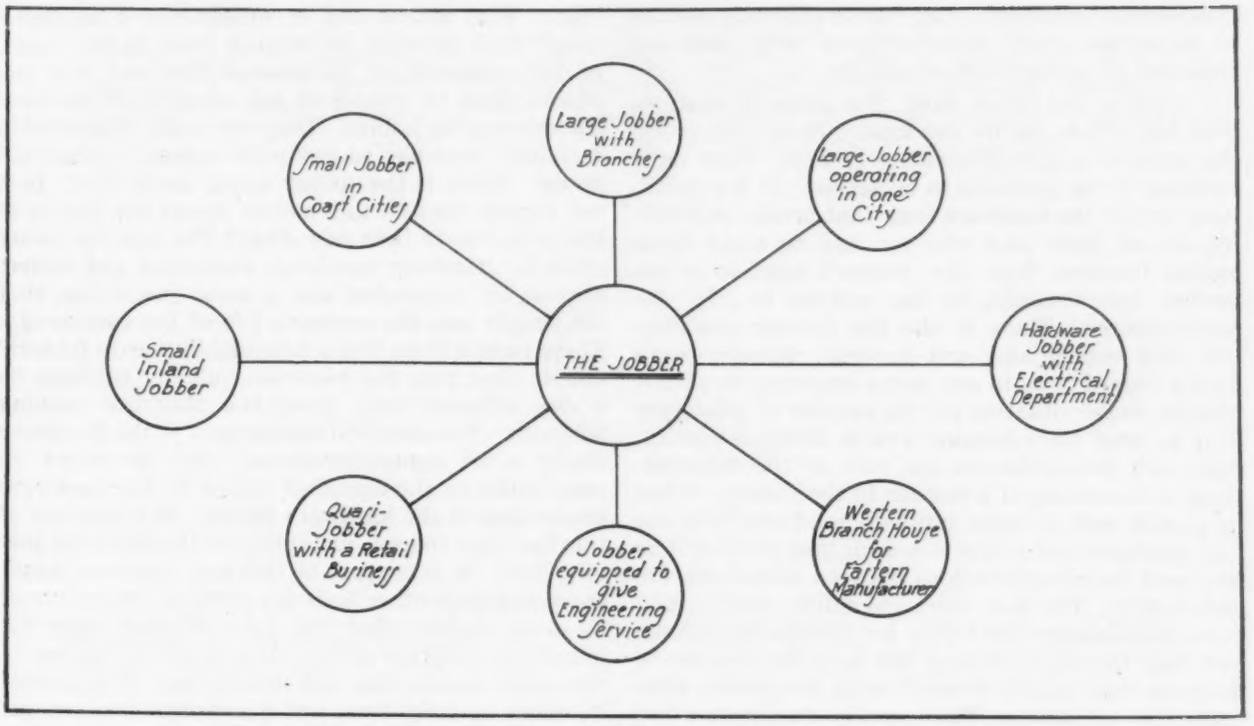

Large Jobber with Branches
Small Jobber in Coast Cities
Large Jobber operating in one City
Small Inland Jobber
THE JOBBER
Hardware Jobber with Electrical Department
Quasi-Jobber with a Retail Business
Jobber equipped to give Engineering Service
Western Branch House for Eastern Manufacturer

Chart showing the various classes of jobbers operating in Pacific Coast cities.

jobbers may be classified on the basis of their relations with each other. Thus we find jobbers affiliated into associations or trade organizations and these are known in trade circles as "association" jobbers, while those who do not affiliate with such an organization are known as "non-association jobbers."

Finally, there is a classification of jobbers that is too often overlooked, namely, that based upon merchandising methods. There are jobbers who look upon the jobbing business with a view that is now somewhat antiquated and narrow, while over against these one meets with jobbers who perform all the functions traditionally inherent in the business and in addition service the goods that they distribute. These latter jobbers are experts in sales promotion and in the education of dealers. They do not wait for the business to come to them, they go after the business by teaching their dealers how to expand sales. It is just a case of performing all the old jobber functions plus the much needed service of improving the dealer outlets within the jobber's control.

The several classifications here considered are important. They may be looked upon as so many tests which a manufacturer may apply to a given jobber. When so applied the jobber's position becomes quite definite and most of the guesswork is eliminated. Thus, a given jobber is identified as weak or strong in distribution, independent or controlled. If controlled it may be by means of credit extended or it may be by means of ownership of capital stock. He is either regular or otherwise, progressive in his merchandising methods or backward. When a manufacturer knows these things he is in a fair way to know what kind of an outlet a given jobber will afford.

The Jobber's Outlets

From the point of view of the manufacturer the jobber's business may be looked upon as a sort of intermediary reservoir with a large number of faucets. So far as electric appliances, fixtures, radio apparatus and some other goods are concerned the faucets are retailers of one sort or another. For certain other lines that the jobber handles the outlets are industrial corporations and central stations. The main point here to be stressed is this, the greater the number of effective outlets the more useful the jobber is to the manufacturer.

Thus it appears that the jobber occupies a very important position in the mechanism of distribution. He faces two ways at once, for he has relations very definite and very intimate with the manufacturer and his relations with retail outlets and consumers are of no less importance. From each side he is looked to for certain very definite services and from each he receives criticism or praise according as he fulfills expectations. Of these two relationships it is difficult to make a distinction as to relative importance. From the point of view of one who thinks over these problems with a detached interest the jobber's relations with the manufacturer appear to be most critical and delicate. In a sense the jobber is a manufacturers' agent operating in the immediate contact with dealers. The more powerful the manufacturing corporations become the greater the temptation to absorb the jobber's function. From this it follows that the jobber's chief hope is in the small manufacturer whose prospects of an independent distributive system are remote. Since we are living in a dynamic social order the chance of reaching an era where no small manufacturers will exist is remote. Thus it follows that the jobber is in the

distributive business to stay, but to stay only so long as he serves small manufacturers with sufficient efficiency to enable them to survive.

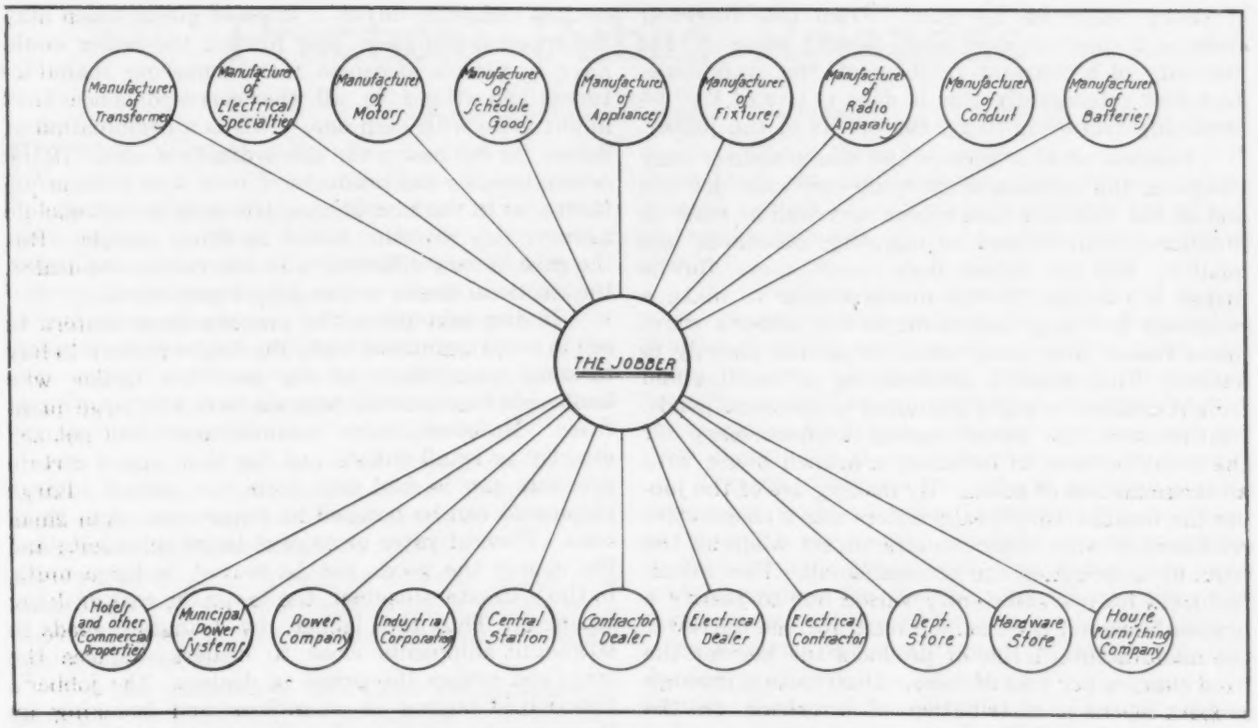
Now on the other hand, the jobber's relations with his outlets are no less vital. These outlets are the outposts of the distributive system. They must function if the public is to be served. If the conditions within the trade are such that profits in retailing do not draw men who can and do make these outlets function, then the jobber's position is imperiled, for, virtually, he has nothing to offer the manufacturer. There is also the further complication that enterprising and powerful manufacturers do not regard it as in any sense improper to scrutinize the dealer situation for the purpose of bolstering it or in other ways forming a more intimate contact. Any such disposition on the part of the manufacturer is something of a menace to the jobber. What he should seek is more intimate relations with the manufacturer and a situation such that there will be less need for closer relations between manufacturers and dealers. The more alert and active jobbers fully sense this situation and they are seeking so to function that the manufacturer will have no occasion to do more than satisfy himself as to his jobber, then leave the rest to him. There can be no question but that the jobber's responsibilities for his outlets are just as great as his responsibilities to his outlets, and the measure of this responsibility is just as vital as the jobber's hope of survival, neither more nor less.

In the hardware field there is a situation which an electrical manufacturer may look upon as comparatively ideal. There is a well developed and thoroughly established hardware industry marketing its output through jobbers who stand for the very best things in the jobbing profession. These jobbers, however, owe their strength to a large extent to the fact that the retail outlets for hardware are now standardized and functioning. When the consumer thinks of hardware he thinks of the hardware store. Every community has one or more of them and most everyone in the community knows what can be purchased there. Now it will not do to intimate that hardware distribution has no problems. That is not the point. The hardware industry has its problems but they are nothing like as severe as those in the electrical field for the reason that consumers have not been taught to think of the electrical dealer when they think of electrical goods. This is so because there are numerous factors at work which tend to make the consumer think of some other sort of dealer. All of this will come in for fuller treatment later, but before the point is passed, let me say that one of the things essential to the future of the electrical jobber and the electrical dealer is that the consumer be taught to think of a definite place where he can with certainty find the electrical goods that he wants when he thinks in terms electrical. That is why the jobber has a vast responsibility for the future of the outlets which he holds forth as an inducement to the manufacturer.

The Hardware Store

It may be said that the hardware store is much older. That is true, and in consequence it has had a longer time in which to intrench itself in the regard of the consumer of hardware. However, the emphasis must be placed on the shaping of the consumer's buying habits. They are being shaped with certainty from day to day with respect to electrical goods. What is the jobber doing about this? Is it not certain that on this matter hangs the future of the jobber more than any other? The local hardware store is, relatively speaking, time-tried and tested, thoroughly intrenched and a social institution that fits snugly into the economic life of the community. There results from this a dependability as to jobbers' outlets that puts the hardware jobbing business on a very different basis from the electrical jobbing business. The electrical counterpart of the hardware dealer is the contractor-dealer. But he offers no such outlet to the electrical jobber as the hardware dealer does to the hardware jobber. It is because of this fact that there is instability in the electrical jobbing field. It is because of this that electrical appliances and some other lines are going to the consumer by other routes. And just here we enter upon the important question of the relation of the jobber to the other outlets that are developing. This cannot be taken up fully here, but it overlaps this present question, the jobber's outlets. The fact is that the jobber is in danger of losing control of the economic forces that determine his future in so far as new outlets develop which are more or less certain to be just outside his reach. There is the hardware store with its tendency to carry certain electrical products which might very well be thought of by the consumer when he thinks of other goods ordinarily found in a hardware store. There is the department store with its electrical department at hand because the housewife must have service. If she thinks of egg-beaters, the electrical egg-beaters must be exhibited along with other sorts if the service is what it ought to be. There is the house furnishing concern whose customer may be made to think of an electric cleaner when considering the purchase of carpets. These are outlets which the jobber is now tapping to some extent and they are compelling his attention. Why? It is just a case of the association of ideas. Cannot the jobber take advantage of this fact to standardize the retail outlet for electrical goods so that the consumer will think of the electric shop when certain wants come to mind? This question is at the center of the problem of the relation of the jobber with his outlets and these outlets are the most important thing that he has to offer the manufacturer.

It is true that some jobbers look upon the growing volume of sales made through department stores and other like outlets with complacency. Perhaps this attitude is justified, but there is this to be said: the greater the number of outlets with essentially different merchandising systems, the greater the problem of the jobber in so far as he looks to these outlets for business. The jobbing system must find its best development in a soil where its roots will take a firm and lasting hold. The jobber has the surest footing when dealing with a retail merchan-



The position of the jobber in the distribution system, that of intermediary between a group of manufacturers and various classes of retailers and consumers.

dising unit that he understands. It is for this reason that many jobbers view with apprehension the development of retail outlets other than the contractor-dealer. Moreover, how can the jobber be at all certain that department stores will not buy from the electrical manufacturer just as they often buy from other manufacturers, rather than from the electrical jobber of the same community?

The Functions of the Jobber

It has been made clear that the jobber stands at a strategic place in the distributive system, facing as he does in two ways—toward the manufacturer on the one hand and toward the several available retail and other outlets for electrical goods on the other. He is in this position because of the economic functions which he performs with respect to each group. We may now take time to consider what functions a typical or representative jobber performs. Perhaps the reader will say that these functions are well known. Even so, it will make for clarity if they are here presented and considered with respect to the distribution of electrical goods in particular.

The representative jobber (a) has a jobbing territory which he more or less effectually serves. Its boundaries are determined by the railroad freight-rate structure of the territory where he operates, by the aggressiveness of his competitors, by the efficiency and strength of his own sales force, by the character of the goods which he handles, by the distribution of centers of population which may be reached from a given jobbing center, by the amount of capital at his command and the number of branches which he may be able to operate.

(b) The jobber is an expert in marketing and merchandising within the limits of the line that he undertakes to distribute. Perhaps this is saying too much. Nevertheless it is true, relatively speaking, for he ordinarily knows much more about the problems of distribution within his own territory than the manufacturers for whom he distributes. To say that he is an expert in merchandising is going rather far for the typical or representative jobber, for the problems of merchandising, when done along the most approved modern lines, are far from simple. While a comparatively few jobbers are merchandising their lines according to the most advanced knowledge of the subject, it is true that the typical jobber is fairly familiar with the buying power of his territory, that he is well informed as to the number and strength of his competitors, that he keeps a reasonably close check upon the activities of industrial and other corporations that may be in the market for his goods, that he knows a good deal about the ramifications of the numerous corporations and concerns which may be said to give his territory its economic characteristics, that he has some information as to the sources of wealth within his territory and in general he is familiar with all the factors that determine the state of the market for electrical goods within his territory from time to time. Necessarily he knows a good deal about credit conditions and the number and strength of retail outlets for goods.

Upon this background or foundation the jobber undertakes to assemble goods well in advance of the demand. In performing this function he buys electrical products from scores of manufacturers in widely scattered sections of the country and thereby places at the disposal of dealers thousands of items. These are assembled in the jobber's warehouse and held as a reserve stock for the future needs of the

territory where he operates. From this reservoir there is a constant flow and, hence, there is the necessity of a constant refilling of the warehouse. Just how intelligently this is done is one of the determining factors in fixing the profits of the jobber.

Because of this service the manufacturer may be spared the problem of studying consumer demand and all the mistakes that might very well be made in producing with respect to quantity, standards and quality. But the jobber does much more, for he makes it possible for the manufacturer to make a relatively few large shipments to the jobber's warehouse rather than many small shipments directly to dealers. This means a great saving in handling and freight charges to every consumer of electrical goods. Furthermore, the jobber makes it unnecessary for the manufacturer to maintain a branch house with an accumulation of goods. By making use of the jobber the manufacturer really enters into a cooperative relationship with other manufacturers whereby the costs of distribution are reduced to all. Few manufacturers have a sufficiently varied line to justify a branch house on the Pacific Coast, for the narrower the manufacturer's line of products the heavier the fixed charges per unit of sales. Distribution through jobbers means a distribution of overhead on the basis of sales made for each manufacturer.

The jobber performs an important financial service to manufacturers by extending credit to dealers. If the manufacturer sold directly to dealers he would have, instead of one account with a jobber, hundreds of accounts with dealers about which he must, of necessity, know less than the jobber does. Consider the expense that the manufacturer who sells over the head of the jobber must incur in looking up the credit standing of the multitude of dealers from whom orders must come. But even if the manufacturer could solve this problem, he would find it almost impossible to place goods in the hands of dealers and other buyers just when they are needed. This is particularly applicable to Pacific Coast territory, the jobbing centers of which are so far removed from factories, because of the uncertainty as to arrival of shipments.

The jobber's salesmen must not be overlooked, for they place before the dealer a catalog containing a vast array of electrical products from which the dealer may make his selection. On the other hand, the manufacturer's salesmen have a comparatively narrow line, being confined to the goods manufactured by one concern. The jobber's salesmen are the jobber's eyes. They not only sell, they study conditions in every community and report upon their observations. Many of these data will come to the attention of the jobber's credit man. He is in far closer touch with the retail outlets for goods than the credit department of the manufacturer can be. Thus it follows that the jobber may safely make sales that no manufacturer could consider. The more intimate knowledge of credit conditions on the part of the jobber makes his risks less and a greater volume of sales is made because of this than would otherwise be possible.

The jobber has on hand and within easy reach of dealers and other buyers a stock of goods which may be tapped as required. But for this the dealer would have to receive salesmen from numerous manufacturers and attend to all the correspondence that might arise with each one. This is a combination of duties far too heavy for the ordinary dealer. If the dealer handles the products of only a few manufacturers, as in the case of shoe stores or an automobile agency, this problem would be fairly simple. But the case is very different with the contractor-dealer, the electrical dealer or the department store.

In the next place, the manufacturer prefers to sell in large quantities while the dealer prefers to buy in small quantities. At any rate the dealer who knows his business will hesitate to buy in large quantities. Moreover, many manufacturers will not sell directly to retail outlets and for this reason certain products can be had only from the jobber. Large shipments can be handled at lower costs than small ones. Freight rates encourage large shipments and the nearer the goods can be moved, in large units, to the ultimate consumer, the lower the cost of doing business. Thus the jobber, by bringing goods in large-unit shipments close to dealers, reduces the costs and lowers the prices to dealers. The jobber's function of buying in quantities and breaking up these purchases for redistribution to dealers is of great social importance as well as service to dealers.

The jobber may by extending credit make it possible for a man with small capital to open a retail business and thus provide one more outlet for goods. While this service on the part of the jobber may mean a larger service to the community, it may also mean the establishment of retail outlets that lack all the characteristics of independent operation. But jobbers have a knowledge of regional and local trade conditions which they may place at the disposal of the dealer and thus make his chances of survival more promising than they would otherwise be. Finally, if the dealer does not buy from the jobber, he will require more storage space, a large initial investment and more working capital than would otherwise be the case. He would find it necessary to buy in larger quantities and to carry stock for longer periods. His risks arising from changes in business conditions would be multiplied accordingly.

With this brief statement of the services of the jobber to the manufacturer on the one hand and to the dealer on the other it is possible to pass to a consideration of the actual position of the jobber in the trade. What has just been said with respect to the jobber's functions applies to the typical jobber. Most jobbers perform these several services. Some jobbers perform them with great efficiency. To the extent that they are well performed the jobber's position is strengthened. The chief purpose in outlining these functions here is to make it clear that any jobber has a status that results from definite relationships which are the outgrowth of economic conditions. These relationships are economic ties which may be strengthened or weakened as time goes on. Any correct understanding of actual conditions which jobbers confront from day to day must rest on this foundation.

Practical Public Relations

By O. L. Mackell*
Office Manager, Public Service Company of Colorado, Denver

PUBLIC attitude today has become of major importance in all lines of business depending on the patronage of the public. Nowhere is it of more concern or value than to the utility providing some form of service, whether in rural districts or metropolitan centers. There are two distinct phases to this subject—one has to do with the principle of government-operated utilities versus private ownership, while the other phase concerns the sale of some specific service such as transportation, communication, light, heat or power.

It is this last phase which I shall presume to present for your consideration, from the specialized angle of the office or "book" end of one of the largest utilities in the Rocky Mountain region.

The oft-charged "public be damned" policy of a decade ago died a useful death when it opened up a way for a closer human influence between the public and the utility.

For the purposes of this paper consideration is given only to the public, the individuals of which may or may not be customers, for the reason that the public relations subject to be given thorough consideration must also include the appeal to the employee and the stockholder.

In our company, when an applicant applies for service, the contract department scrupulously and carefully tells when service may reasonably be expected in order that there will be no initial disappointment on the part of the customer. Employees are instructed to advise them that if the service or equipment provided by the company is not satisfactory to call the company any time of the day or night.

If the call is made in person it is presented at the investigation department, while if made by telephone the employee answers "service department." Men are used at the counter while pleasant-voiced girls answer the phones and they are expected to learn the exact trouble of the customer. If a gas leak is reported, immediate attention is ordered through a direct telephone branch with the gas-service department. If difficulties with the electric lights are reported in the daytime, arrangements are made to see that the condition is corrected before dusk.

Even more attention is given to insure service after dark. When a trouble man is sent out on a call he is instructed to telephone the office after making that call, or the last of a series of calls, to learn if there is any additional work in the neighborhood. Either the last customer's phone or that of a nearby fire house or police station is utilized for this purpose.

It frequently happens that when a customer reports his difficulty, within two or three minutes a service man is at his door. The former thinks this an uncanny arrangement because he may have just hung up the receiver. I can tell you that next to the pocketbook there is nothing that appeals more strongly to the customer than this almost instantaneous service. It will make him think and appreciate the company's effort to serve when nothing else will.

The telephone plays a major part in our ability to serve our customers promptly and adequately. With each yearly increase of customers, added telephone facilities are required both in the number of branches as well as in trunk lines, so that the customer can communicate with the company and the right department at any time with a minimum delay.

The inflection and tone of the operator's voice answering "Public Service Company" and the manner in which she handles the call is an all-important feature in our relations with the public. Any time when necessary the operator will take service calls. Whenever a customer, thinking his trouble or difficulty demands the attention of the higher-up, asks for the president, the operator politely informs the inquirer that "the president is out of town (which is true)—but I'll give you the office manager." This system results in the call being connected with his desk, thus saving the time of the general manager with what is generally found to be petty complaints. But if the party asks for the general manager by name, regardless of the nature of the call, he gets to talk to him promptly.

With all complaints, the company goes the limit. Nothing is left undone in order to satisfy the customer. Regardless of the difficulties or the impossibility of solution, employees are instructed under no circumstances to say, "Sorry, we can't do anything for you."

Cases are even encountered in our company when customers complain of high bills. Even if there is no immediate solution or settlement possible and with the discount period ready to expire, if that customer asks, "Do I have to pay my bill today?" the instant reply is, "No, a day or so will be all right in order that we can look into the matter."

What we believe to be a good investment is that of a uniformed floor officer. His primary object is to keep an eye on the cashier's cages and to serve as an escort to and from the banks. Otherwise he is found to be of considerable help in serving the customers who come into the office or salesroom by answering inquiries, and in preventing jams at either the cashier's cages or contract counters.

It is not alone a matter of his seeing that people are served properly and promptly, or "taken care of all right," but to see that they go out feeling all right.

A satisfied customer is our paramount object. The employee must take this to heart. Even if proficient in one particular department, it is our practice to provide schooling for them in all departments, the primary reason being for use in emergencies—the entire objective being better service to the public.

*Extracts from a paper before the Midwinter Meeting of the Rocky Mountain Division, N.E.L.A., Denver, Dec. 18, 1923.

The COAST Outlet
ELECTRICAL CONSTRUCTIONISTS' and DEALERS' NEWS

Electrical Construction

By E. Earl Browne

THE determination of the proper fuse, wire, conduit and switch sizes to use in motor installations to give proper protection, with a minimum of expense, is not as simple as first thought might indicate. In the first place, any single phase repulsion, repulsion-induction or squirrel cage polyphase motor starting with an "across the line" type of starter requires from 250 to 600 per cent of full-load current as a starting current, and if the 1920 National Electrical Code Rule 8-c (pages 18 and 19 under "Size and Protection of Conductors of Motor Circuits") and Rule 808 (pages 66, 67 and 68 of the 1923 Code under "Protection of Motor Circuits") are strictly adhered to, the sizes of wires to be provided to meet their requirements seem, for the short starting period of a few seconds, to be too large.

It is with this thought in mind that some inspection departments and bureaus have compiled tables which permit the use of smaller sizes than the above-mentioned rules contemplate. A most valuable set of tables was compiled by the Industrial Accident Commission of the State of California and has been issued in its Electrical Safety Orders (Proposed Revised Form, pages 226 to 240, inclusive). Tables 1, 2, 3 and 4 shown are the cost commonly used by the electrical contractor.

These tables and rules are complete, so far as sizes of circuit wires, etc., are concerned, but the question of

TABLE 1.

Single-Phase, 110 Volt, Repulsion-Induction Motors with Compensating Windings. Continuous Duty.

Rated horsepower	*Syn. speed	Approx. full load current	Wire and conduit sizes						§Circuit overload protection	‡Motor running overload protection
			To running overload protection		From running overload protection to motor					
			Rubber or varnished cloth insulation		Rubber insulation		Varnished cloth insulation			
			†Wire	Conduit	Wire	Conduit	Wire	Conduit		
¼	1800	4	14	½					15	
¼	1200	5.8	14	½					20	
½	1800	6.4	14	½					20	
½	1200	7.4	14	½					20	
¾	1800	8.6	14	½					25	
¾	1200	10.6	12	½					30	
1	1800	11	12	½					30	
1	1200	13.6	10	¾					35	
1½	1800	15	10	¾					35	
2	1800	20.6	8	¾					45	
2	1200	23.4	8	¾					45	
3	1800	28.4	6	1	8	¾			55	35
3	1200	31	6	1	6	1			60	40
5	1800	46	4	1¼	4	1¼	6	1	90	60
5	1200	48	4	1¼	4	1¼	6	1	100	60
7½	1800	66	2	1¼	3	1¼	4	1¼	125	80
7½	1200	76	1	1½	2	1¼	3	1¼	150	90

*Speeds given are for 60 cycles. Table applies to 50-cycle motors with corresponding speeds of 1500 and 1000 r.p.m.
†Wire sizes given in this column apply to entire branch circuit when motor is rated at 2 h.p. or less. Wire with varnished cloth insulation can not be used in sizes smaller than No. 6 without special permission.
‡Running overload protection not required with motors rated at 2 h.p. or less, but recommended with all continuous duty motors larger than ½ h.p.
§Assumed that no starting rheostat will be used.

TABLE 2.

Single-Phase, 220 Volt, Repulsion-Induction Motors with Compensating Windings. Continuous Duty.

Rated horsepower	*Syn. speed	Approx. full load current	Wire and conduit sizes						§Circuit overload protection	‡Motor running overload protection
			To running overload protection		From running overload protection to motor					
			Rubber or varnished cloth insulation		Rubber insulation		Varnished cloth insulation			
			†Wire	Conduit	Wire	Conduit	Wire	Conduit		
¼	1800	2	14	½					10	
¼	1200	2.9	14	½					10	
½	1800	3.2	14	½					10	
½	1200	3.7	14	½					15	
¾	1800	4.3	14	½					15	
¾	1200	5.3	14	½					15	
1	1800	5.5	14	½					20	
1	1200	6.8	14	½					20	
1½	1800	7.5	14	½					20	
2	1800	10.3	12	½					30	
2	1200	11.7	12	½					30	
3	1800	14.2	10	¾	12	½			35	20
3	1200	15.5	10	¾	12	½			35	20
5	1800	23	8	¾	8	¾			45	30
5	1200	24	8	¾	8	¾			45	30
7½	1800	33	6	1	6	1			65	40
7½	1200	38	4	1¼	6	1	6	1	75	50
10	1800	45	4	1¼	4	1¼	6	1	90	55
10	1200	47	4	1¼	4	1¼	6	1	90	60

*Speeds given are for 60 cycles. Table applies to 50-cycle motors with corresponding speeds of 1500 and 1000 r.p.m.
†Wire sizes given in this column apply to entire branch circuit when motor is rated at 2 h.p. or less. Wire with varnished cloth insulation can not be used in sizes smaller than No. 6 without special permission.
‡Running overload protection not required with motors rated at 2 h.p. or less, but recommended with all continuous duty motors larger than ½ h.p.
§Assumed that no starting rheostat will be used.

sizes of services, feeders and sub-feeders for a group of motors is one which the contractor or inspection department is usually obliged to figure on a 100 per cent demand factor. He must also provide for sufficient capacity for the starting of the largest motor with all other motors operating at full load.

With this in mind, and in the absence of a guaranteed demand factor by the owner, it is usually safe to apply the following rule: Add together the full-load currents of all motors supplied by the service, feeder or sub-feeder under consideration, and **add thereto 50 per cent of the starting current of the largest motor.** The following are examples to illustrate the rule:

Example No. 1

220-volt, 3-phase installation:

	Amps.	Amps.
3— 1 hp.	= 3x 3.0	= 9.0
2— 3 "	= 2x 9.0	= 18.0
4— 5 "	= 4x14.0	= 56.0
1— 7½ "	= 1x20.0	= 20.0
1—15 "	= 1x38.0	= 38.0
1—30 "	= 1x75.0	= 75.0
Total full-load current		= 216.0
50 per cent of starting current of largest motor = 75 amps. x 200% x 50%		= 75.0
Total load to be provided for		= 291.0

Referring to Table "A" (page 44) and Table No. 1 (page 76), of the National Electrical Code, three 350,000 C.M. R.C. cables would be used in a 3-in. conduit and a 400-amp., 3-pole, 250-volt safety switch with 300-amp., 250-volt cartridge fuses.

Example No. 2

440-volt, 3-phase installation:

2— 10 hp.	= 2 x 13.0 amps.	= 26.0 amps.
2— 25 "	= 2 x 32.0 "	= 64.0 "
1— 50 "	= 1 x 62.0 "	= 62.0 "
1— 75 "	= 1 x 91.0 "	= 91.0 "
2—100 "	= 2 x 123.0 "	= 246.0 "
Total full-load current		= 489.0 "
50 per cent of starting current of largest motor = 123 amps. x 200% x 50%		= 61.5 "
Total load to be provided for		= 550.5 "

Result: Three 800,000 C.M. R.C. cables in a 4-in. conduit and a 600-amp., 500-volt a.c., 3-pole safety switch with 550-amp., 600-volt cartridge fuses.

TABLE 4.

3-Phase, 440 Volt, Squirrel Cage Induction Motors. Continuous Duty.

Rated horsepower	Approx. full load current	Wire and conduit sizes: To running overload protection — Rubber or varnished cloth insulation — *Wire	To running overload protection — Rubber or varnished cloth insulation — Conduit	From running overload protection to motor — Rubber insulation — Wire	From running overload protection to motor — Rubber insulation — Conduit	From running overload protection to motor — Varnished cloth insulation — Wire	From running overload protection to motor — Varnished cloth insulation — Conduit	Circuit overload protection	†Motor running overload protection
¼	.5	14	½					5	
½	1	14	½					5	
¾	1.3	14	½					8	
1	1.6	14	½					10	
1½	2.3	14	½					12	
2	3	14	½					15	
3	4.6	14	½	14	½			20	6
5	7	14	½	14	½			25	10
7½	10	12	¾	14	½			30	12
10	13	10	¾	12	¾			35	20
15	19	8	1	10	¾			50	25
20	26	6	1¼	8	1			65	35
25	32	6	1¼	6	1¼			75	40
30	38	6	1¼	6	1¼	6	1¼	90	50
35	44	4	1¼	4	1¼	6	1¼	100	55
40	51	4	1¼	4	1¼	4	1¼	120	65
50	62	3	1¼	3	1¼	4	1¼	130	80
60	73	1	1½	2	1½	3	1¼	150	90
75	91	0	2	0	2	2	1½	200	110
100	123	000	2	00	2	0	2	250	150
125	156	0000	2½	0000	2½	000	2	325	200
150	184	250,000	2½	0000	2½	0000	2½	375	225
200	246	350,000	3	350,000	3	250,000	2½	500	300
250	310	500,000	3	500,000	3	400,000	3	600	400

*Wire sizes given in this column apply to entire branch circuit when motor is rated at 2 h.p. or less. Wire with varnished cloth insulation can not be used in sizes smaller than No. 6 without special permission.

†Running overload protection not required with motors rated at 2 h.p. or less but recommended with all continuous duty motors larger than ½ h.p.

TABLE 3.

3-Phase, 220 Volt, Squirrel Cage Induction Motors. Continuous Duty.

Rated horsepower	Approx. full load	Wire and conduit sizes: To running overload protection — Rubber or varnished cloth insulation — *Wire	To running overload protection — Rubber or varnished cloth insulation — Conduit	From running overload protection to motor — Rubber insulation — Wire	From running overload protection to motor — Rubber insulation — Conduit	From running overload protection to motor — Varnished cloth insulation — Wire	From running overload protection to motor — Varnished cloth insulation — Conduit	Circuit overload protection	Motor running overload protection
¼	1	14	½					10	
½	2	14	½					10	
¾	2.5	14	½					12	
1	3	14	½					15	
1½	4.5	14	½					20	
2	6	14	½					25	
3	9	12	¾	14	½			30	12
5	14	10	¾	12	¾			40	20
7½	20	8	1	10	¾			50	25
10	26	6	1¼	8	1			65	35
15	38	6	1¼	6	1¼	6	1¼	90	50
20	51	4	1¼	4	1¼	4	1¼	120	65
25	63	3	1¼	3	1¼	4	1¼	130	80
30	75	1	1½	1	1½	2	1½	150	100
35	88	0	2	0	2	2	1½	180	110
40	101	0	2	0	2	1	1½	200	125
50	123	000	2	00	2	0	2	250	150
60	146	0000	2½	000	2	00	2	300	180
75	182	250,000	2½	0000	2½	0000	2½	375	225
100	245	350,000	3	350,000	3	250,000	2½	500	300

*Wire sizes given in this column apply to entire branch circuit when motor is rated at 2 h.p. or less. Wire with varnished cloth insulation can not be used in sizes smaller than No. 6 without special permission.

†Running overload protection not required with motors rated at 2 h.p. or less but recommended with all continuous duty motors larger than ½ h.p.

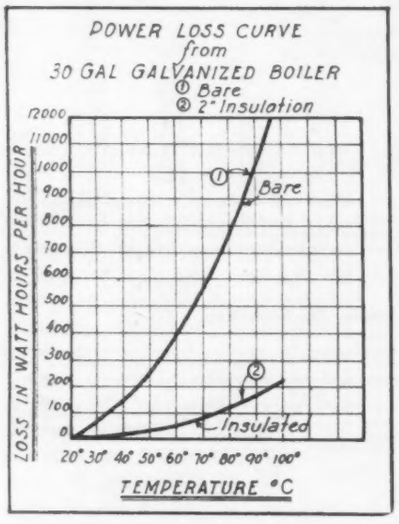
This work and these conditions must always be considered in complete harmony with the local inspection departments. It may at times seem that local requirements are too exacting but the regulations of local bureaus are usually based on experience with conditions as found locally and rulings are made with the view of providing safety and not ordinarily merely for arbitrary reasons. Inasmuch as the promotion of the use of electricity and electrical devices depends to a great extent upon the safety appeal of such equipment every means should be employed to increase the safety factor. Contractors and workmen who are sincere in their efforts will always take steps to see that installations are in accordance with all requirements and that capacities and protection are in every case adequate for the maximum demand and use, thereby increasing the satisfaction derived and promoting the further use of electrical equipment.

Proper Insulation Aids Sale of Heating Equipment

Heat Losses Often Exceed Necessary Operating Expense and Retard Installation and Sale of These Devices

By KENNETH H. DYER
Western Insulex Company

The advantages and applications of modern insulating materials and methods are unfortunately little realized by the average home owner or builder. It is not unusual to find a hot water boiler neatly covered with one layer of asbestos paper and the owner imagining the fuel saved by its use. One layer of asbestos paper actually increases radiation losses and causes a corresponding increase in the power bill. However, the non-technical owner cannot be blamed for his ignorance as he pays his architect or builder for advice and relies on their judgment. The buying public should receive and profit by the knowledge of industrial engineers and owners on the value of proper insulation, especially as often the former's fuel is more expensive per unit.



Curves showing energy losses from a 30-gal. galvanized hot water tank, when bare and when covered with 2-in. insulation. The savings which can be effected by the application of good insulation decrease sales resistance and make satisfied customers.

A mechanical engineer in designing an industrial plant includes complete insulation in his specifications. Yet probably 90 per cent of the specifications written for homes and apartment houses make no mention of the insulating requirements. In fact, the architect often makes its use impossible by placing the range boiler in a cupboard too small to allow the installing of efficient insulation, and frequently does not see that the cupboard is sealed on the top and bottom to prevent unnecessary circulation.

A good boiler jacket should be at least 2 in. thick and the workmen need another 2 in. to apply it. Somewhat similar obstacles are placed in the path of the owner that wants to install pipe covering. The plumber has been allowed to run his pipes through the studding or plates completely on one side or the other, thereby not leaving ample clearance between the pipes and the plaster for the pipe covering. Boiler jackets and pipe covering are manufactured with constructional problems in mind and with cooperation from the architect and builder, the owner will be saved additional labor charges.

The losses resulting from the use of an uncovered range and boiler pipes in even a small house are surprising. Take, for example, the modern automatic electric hot water heater with an uninsulated system. It has been proven that more energy is lost in the dissipation of heat from the uncovered surfaces than is actually needed for heating the water. This means that if the electric bill for a certain period was, for example, $10, the owner would be paying about $4.50 for hot water heating and $5.50 because someone did not urge him to insulate. This $5.50 contribution is not wanted by the power company and fortunately for the owner, it does not take very many of these donations to thoroughly insulate every pipe and boiler in the house.

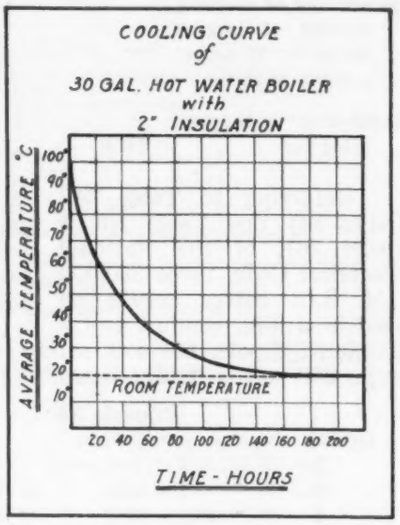
The following figures are compiled from tests of competent engineers and serve to give a more complete idea of the heat losses resulting from the use of uncovered pipe lines and boilers. It is assumed that a 30-gal. boiler and 100 ft. of 1½-in. pipe are typical of the average domestic system; that the room temperature averages 65 deg. F., and that the water is to be kept at an average temperature of 160 deg. The radiation losses for one month's continuous operation will be 442 kw-hr. which, at a 2c. rate, amounts to $8.84. Now, considering the same conditions with the addition of complete insulation, the radiation losses will be reduced fully 90 per cent. This means a saving of $7.95; certainly enough to be considered, particularly as this loss will accrue continuously.

Analyzing the above losses, it will be found that the greatest proportion of the radiation has occurred from the tank. This would seem to indicate that the rest of the system could remain uncovered without serious lowering of efficiency. This would be the case if it were not for the fact that, if the water in the pipes is allowed to cool, the cold water will drop down to the tank and tend to lower the tank temperature, then more hot water will rise and be cooled, etc. This internal circulation in the pipes will naturally cause an increase of fuel consumption. No data are offered supporting this as none are available, but tests would undoubtedly prove surprising.

If the radiation losses are to be kept at a minimum, a good material is necessary. The first consideration is, of course, its insulation efficiency, and then how long and under how severe conditions the material will continue to produce this efficiency. Vacuum is the best insulation obtainable but, except for special uses, as in vacuum bottles, its cost is too high because of the costly container. Next best is still air, but air confined where the surrounding temperature is not equal will not remain still but will circulate and endeavor to equalize the temperatures. This is what takes place in a room, one side of which is exposed to the sun. A circulation is set up which will in time heat all four walls to practically the same temperature. It is readily seen why vacuum is such an excellent insulator as in a perfect vacuum circulation is impossible. The problem is, therefore, to keep the air circulation down. Where there is a temperature difference this is impossible but it is possible to confine it to a small area. This is done by producing materials that consist of very small confined air spaces. In each one of these circulation takes place, as in the room mentioned above, but the cells of air being so small, circulation hardly has a chance to produce results. The larger these little cells are, the poorer the material as an insulator.

There are some materials that are naturally good insulators in some cases; wood, for instance, is an insulator of sorts, as it contains confined air spaces. Some woods are better insulators than others, some of the rarer ones that are light in weight being excellent but not very plentiful, however. The value of hollow tiles for buildings in extreme temperature conditions brings out the value of confined air spaces for insulation. Thus to produce the desired lowering of radiation losses the material must be chosen with care, and the insulating efficiency inquired into from a reliable source.

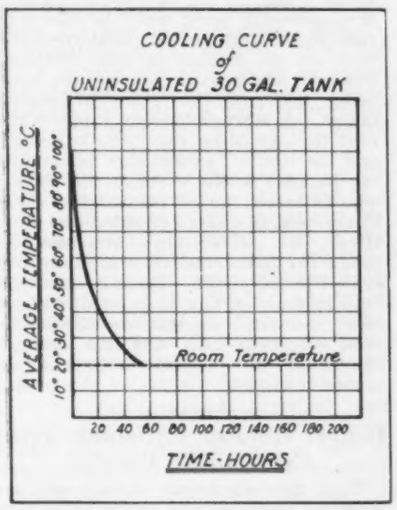
Conditions to be contended with even in domestic work are quite severe, and the durability is a large factor. Leaks in the boiler are probably the greatest source of trouble. They do occur and will render the boiler covering useless if the material will disintegrate in water, and, of course, in order to mend the boiler, the jacket should be removable so that it can be used again. It should be so constructed that it will remain solidly in place because if it sags, a circulation will be set up and produce heat losses. Where the boiler is to be in the kitchen and subject to cooking odors, a material should be obtained that will not absorb these odors and thereby become objectionable and possibly mouldy.



Curve showing cooling rate of a 30-gal. galzanized hot water tank with 2-in. insulation.

Practically the same requirements are to be looked for in the selecting of pipe covering. All fittings should be covered with a good quality of insulating cement.

Smooth surfaces do not radiate heat as readily as rough, nor do light surfaces radiate as fast as dark. These differences are small with the temperatures encountered in domestic work, but if kept in mind often can be turned into savings without additional outlay. The outer covering of boilers and pipe should be as light and as smooth as practical. For general purposes, it may be remembered that the radiation of light and heat are practically the same.


COOLING CURVE
of
UNINSULATED 30 GAL. TANK
AVERAGE TEMPERATURE °C
10° 20° 30° 40° 50° 60° 70° 80° 90° 100°
Room Temperature
20 40 60 80 100 120 140 160 180 200
TIME-HOURS

Curve showing cooling rate of a 30-gal. galvanized hot water tank when not insulated.

The following extracts from tests of the Engineering Experiment Station of the University of Illinois support the statement made elsewhere on the use of single layers of asbestos paper. These tests were conducted mainly to determine the proper covering for furnace air ducts but can be applied to other work with correction for temperature. Bright I C Tin uncovered was used as the basis of comparison but it is mentioned that galvanized iron can be considered as of practically equal efficiency.

Material	Relative Efficiency
1. Approved insulating material	392.0
2. Uncovered tin	100.0
3. 7 thicknesses of 12-lb. paper	97.0
4. 1 thickness of 10-lb. asbestos paper	61.5

Roseburg Has Modern Apartment House with Electric Ranges

Through the efforts of the Hudson Electric Company, Roseburg, Ore., that city now has a thoroughly modern apartment house of fifty-three apartments. This building, known as the Kohlhagen Apartments, is completed and partly occupied. Each apartment has an electric range of the latest model and is otherwise up-to-date. The total electrical installation in the building amounts to approximately $14,000 and was laid out and completed by the electrical contractor.

Model Kitchen Helps Department Store Sell Electric Equipment

A model kitchen and back porch with full equipment of electrical appliances has been installed on the sales floor of Barker Bros., the well known household department store of Los Angeles. This is in the form of a booth open on two sides, of the normal size of a kitchen, finished throughout in white enamel with a most attractive interior finish. Blue and white checked curtains finish the windows.

Here the major kitchen and laundry appliances are installed exactly as they would be in the customer's home. The range is connected and indeed, is used almost daily to cook actual food, so that there is generally something to sample to convince the prospect of the operating qualities of the range. The hot water heater provides hot water in the sink, so that it is possible to illustrate just how quickly hot water is available after the faucet is turned on. Dishes are washed in the dish washer with equal success. In the electric refrigerator are kept the foodstuffs already cooked or ready for later preparation for use in the range. In addition the kitchen contains an electric cooker, a mixing machine and an electric steam radiator. White enamel finished kitchen table and kitchen cabinet with all the necessary small utensils complete the outfit.

On the back porch is complete laundry equipment with tubs, water heater, washing machine and ironer. The laundry room is finished in typical back porch fashion in gray with screen windows.

A demonstrator is usually present in the kitchen to explain equipment. Salesmen bring their customers here always as the installed articles offer a much better basis for sales argument than do the unattached articles on the floor. In addition, many who are passing through the department are attracted by the exhibition or the appetizing odors of baking and stop in to inquire concerning some particular equipment in which they are interested.

One of the chief values of the model kitchen, besides its excellent advertising value, is the practical solution it offers to the problem of demonstrating appliances. The store furnishes demonstrations in the customer's home after the article is installed if so desired, but the possibility of demonstrating the same article on the store floor makes this often unnecessary. Either the purchaser will have the opportunity of learning how the appliance is operated before buying it, or she will gladly come down to the store kitchen to attend a demonstration there. This means an appreciable saving for the service department and does much to offset the original cost of the exhibit itself.

The model kitchen installed by Barker Bros., Los Angeles, not only is complete in its electrical equipment, but it even has a convenience outlet or two placed so that the customer may sense the convenience of adequate wiring in the use of the electrical kitchen accessories.

C. H. Carter, of C. H. Carter Electric Company, Sacramento, Calif., was in San Francisco recently to attend the meeting of the Electrical Wholesalers' Credit Club.

These huskies from the Electric Appliance Company's San Francisco force are "there" and "right" when it comes to the gallopin' dominoes. (Left to right) John Tait, "Jeff" Riccomi, Lloyd Carr, Henry Sacht, and Ray Wertz say that this is one of the best known ways to spend the short interval after "ham and" before returning to work.

JOBBER, DEALER AND SALES AGENT

Traveling Electrical Display Attracts Attention

Chicago Manufacturer and Distributor Puts Display on Truck to Permit Showing of Lines from Coast to Coast

To advertise and display the lines of 37 electrical manufacturers was the aim of the Peerless Light Company of Chicago, Ill., when it decided to put an electrical display on a truck body and have the truck tour the United States. In addition to promoting sales for the lines the company handles, the aim of the concern, which is a manufacturer and distributor, was to increase the business of local dealers by attracting attention to electrical devices.

The idea, as planned by B. F. Myers, provided for the equipping of a truck with an attractive body in which there would be room for displaying a considerable amount of electrical appliances, fixtures and radio equipment. This truck was built and designed to make the trip from coast to coast, the plan being to spend approximately eighteen months while making the 10,000-mile trip.

The "Peerless Sales Palace" in front of the Huggins Electric Company store in Trinidad, Colo. Five of the miniature show windows that are visible in the picture give an idea of the display value of the truck.

The truck is so constructed that persons may be taken inside of it, where there is a small stock room fitted with bins and drawers. A full line of samples is carried along with fixture parts and supplies, radio material, heating appliances and table lamps. Show windows, which are visible at all times, are also provided in connection with the exhibit. Both sides of the truck have five of these miniature windows arranged from the front to the back of the body. Table lamps and wall fixtures are attractively arranged in each of these display windows and are illuminated at night.

A radio receiving outfit is part of the equipment of the traveling exhibit. A collapsible antenna, using four barrel type strands, is mounted on the top of the truck body. While the truck is traveling from town to town the aerial is lowered to the car top and is securely lashed there. A system of pulleys permits the raising of the aerial in a short time.

The truck, known as the "Peerless Sales Palace," started from Chicago Sept. 5, 1923, and stopped at Davenport, Iowa, Peoria, Ill., St. Louis, Mo., Kansas City and Wichita, Kan., and many smaller places. The truck then traveled through Kansas and Colorado, stopping at nearly all of the cities and towns en route. From Trinidad the truck followed the Santa Fe Trail to Los Angeles. It is at the present time working from Los Angeles to San Francisco. Stops were also made at smaller towns than those recorded above. From San Francisco the truck will go north and then east by the northern route. After reaching the eastern coast the exhibit will go to Tampa and return to Chicago, stops being made at nearly every city and town.

The general practice has been to spend a day in the larger communities, arrangements being made to hold a parade in the evening. At night the lamps that are on display in the miniature windows are lighted, low voltage lamps being used in the place of regular lamps. A storage battery supplies current for operating the radio equipment and the lights. In addition to conducting parades in the evening, Mr. Myers, who is in charge of the exhibit, H. A. Silverstein, in charge of sales, and W. R. Hirsh, Mr. Silverstein's assistant, arrange for radio concerts which are presented to the public. These concerts are held in front of the store of one of the local electrical contractor-dealers, the local electrical man and the men in charge of the exhibit cooperating to secure a crowd.

Denver Outdoor Christmas Trees Prove to Be Popular

That the electrical Christmas idea plays no small part in the holiday community life of Denver, Colo., is reflected in the following editorial from the Denver Post:

But there is none so highbrow nor one so lowbrow that he cannot appreciate and enjoy the indescribable splendor and beauty of Denver's municipal Christmas trees and their setting.

There are bigger cities than Denver, but there is none more attractive. There are municipal Christmas trappings in cities other than Denver, but nowhere is there one that measures up to Denver's in loveliness or in the perfection of the holiday setting.

Denver is the municipal Christmas tree blazer. The first great tree illuminated in the civic center a few years ago illuminated the way for other cities, and the Denver idea is being copied all over the country.

That is not all. Denver, as a city, set an example for its citizens which has been a source of pleasure and inspiration for thousands and thousands. Numerous citizens who have evergreen trees growing in their yards string these trees with colored lights each Christmas and illuminate them nightly from Christmas eve until New Year night.

These living Christmas trees, of incomparable grace by day, are wondrous in the multi-colored blaze of Christmas lights and they don't have to be cut down to perform their holiday season service.

Some day Denver will take a tip from its citizens who have followed the municipal Christmas tree example. And then living giants of evergreen or spruce will grow in the civic center to adorn it in the summer as well as to illuminate at Christmas.

According to S. W. Bishop, executive manager of the Electrical Cooperative League of Denver, the interest in the outdoor Christmas tree is one of the reasons why the sale of Christmas tree lighting sets in Denver during the recent holidays broke all previous records. The Electrical Cooperative League of that city, which has been one of the prime-movers for outdoor illumination, has reported gratifying results from its campaign.

Western Dealers Place in National Window Contest

Fourteen of Fifty-One Prizes Awarded to Electrical and Radio Dealers With Stores in Western States

Taking 14 prizes out of a total of 51 awarded in the window display contest conducted by E. T. Cunningham, Inc., of San Francisco, Calif., western electrical and radio dealers have shown that they have learned the art of window decorating. At the same time these prize winners, in addition to nearly two thousand others who entered the contest, have shown that they appreciate the sales value of the window display.

The contest was arranged primarily to increase the sale of Cunningham radio tubes by dealers located all over the United States and according to reports, the aim was achieved. Dealers participating in the contest, from the one receiving the first prize to those who did not place, found that the feature window displays that were used during the campaign were exceedingly useful in stimulating sales.

The provisions of the contest stated that it was open only to electrical and radio dealers and that it would last for only one week. To further add to the pulling powers of the windows, the Cunningham company designated the week as "National Tube Week." A large amount of national and local advertising was tied in with the special campaign, thus adding considerably to the sales value of the window displays.

Over two thousand electrical and radio dealers entered the contest. Three judges spent a large amount of time in determining which of the entries made in the contest were entitled to the prizes. Artistic effect, original theme, and the educational sales value of the window display were points that were used by the judges in selecting the winners.

First prize of $1,000 was awarded to the Lester Radio Shop, Los Angeles, Calif., and the third prize, carrying with it an award of $500, was won by another Los Angeles firm, The Electrical Appliance Shop. The winner of the first prize is an exclusive radio dealer and the third prize winner conducts a general electrical retail store with a special radio department.

The window used by the Lester Radio Shop was one of small dimensions, but despite this fact, a most attractive display was presented. The display was designed to show how radio served the world. In the center background appeared a large arch under which was placed a radio receiving outfit that was connected to miniature models of important world events. A card above the receiving set notified the public that radio would bring news of these events into any home. Among the scenes reproduced with the use of the models was the wreckage in Japan following the earthquake. Beside this appeared a card bearing the message, "Except for radio Japan was cut off from the world." The wreck of the U. S. destroyers was also shown and radio was given credit for bringing aid to the stranded vessels. Three of the scenes showed how radio provides entertainment in the home. One brought to the attention of the person viewing the window, the fact that radio would bring to the home, music and dialogue from the theater. A second one brought to mind the fact that the results of prize fights were broadcast and could be received at home by the owner of a radio set, while a third model was accompanied by a card which stated that, "Eloquent sermons and inspiring music are brought into your home via radio."

From each of the models ribbons led to the center of the arch and down to the radio receiving set. The tubes being featured in the window were placed at various points in order that they might attract the most attention. The arch covering the receiving set carried the wording, "Cunningham Tubes Did It!"

A display of an entirely different character won the third prize in the contest. The Electrical Appliance Shop devoted a long narrow window to the display of the tubes. The general idea that was to be carried out in the window was that radio served all classes of humanity—those who lived in large city homes, those who were at sea and those who lived in the remote corners of the world.

At the extreme left side of the window was a model of a large city residence. An aerial was erected over this dwelling and behind the model a greatly magnified radio tube was portrayed on a piece of cardboard which also carried the wording, "Radio Carries Messages Around the World." The panel board of a receiving set occupied the center position of the window in connection with the shore by means of radio. At the right of the window was a model of a log cabin erected in the wilderness, but fitted with a radio outfit in order that its occupants might hear from the rest of the world daily.

These models were all arranged on a raised platform, thus bringing the display closer to the level of the pedestrian's eyes. At the base of the platform boxes of tubes and others set in cardboard standards were placed in alternate rows.

Twelve other electrical and radio dealers in the West were awarded prizes by the judges in the contest. These dealers in addition to receiving honorable mention were each given a prize of $50. The twelve firms receiving the honorable mention were: Equipment Sales Company, San Diego, Calif.; Fortner Camera Supply Company, Sterling, Colo.; Long Beach Radio Shop, Long Beach, Calif.; Murphy Maclay Hard-

The Lester Radio Shop with the window display reproduced above, won first prize in the Cunningham national window trim contest.

Third prize in the window decorating contest was awarded to the Electrical Appliance Shop.

ware Company, Great Falls, Mont.; Prest Electric Company, San Bernardino, Calif.; QST Radio Shop, Tacoma, Wash.; E. M. Sargent Company, Oakland, Calif.; Stoehrer's Electric Shop, Oxnard, Calif.; The Motor Supply Company, Seattle, Wash.; The Radio Distributors, Long Beach, Calif.; Weed's Radio Shop, Portland, Ore., and Willapa Electric Company, Raymond, Wash.

Use County Fairs to Develop Appliance Prospects

Valley Electrical Supply Company Attracts Crowds to Display Presented at County Festival

Attractive displays of electrical appliances and merchandise have increased greatly in number in the past few years and dealers have been devoting more attention to this phase of merchandising. It has come to be recognized that the appeal through the eye is much more powerful than through the ear and that women, for example, will buy much more readily when they can see the device—particularly if it is in operation—than they will when they are merely told about it. This is especially true of the heavier and more expensive appliances such as electric ranges, water heaters and air heaters. Whether this is because of the prices of these articles or is because of the radical departure from established ideas has never been fully determined. It is, however, certain that display is a powerful factor in sales work.

This psychological fact was recognized and taken advantage of by the Valley Electrical Supply Company, of Fresno, Calif., at the recent Fresno County Fair. Having decided to take space at this exhibit, the company then bent its effort towards installing a display that would not only invite but would command attention from all who passed their booth. Consequently an exceptional amount of thought and attention was given to the construction and arrangement of the booth in order that it might have the maximum drawing power.

The booth was L-shaped, built of beaver board and was 25 ft. on each side, thus giving a 50-ft. frontage over all. The side walls were tinted in old rose, as were the background and floor, while the draperies and decorations were of bright gold. Particular attention was paid to the matter of illumination. Cove lighting was used for the general scheme and a total of 14,000 watts was placed in the ceiling outlets. This was placed just behind the front arches of the booth and thus gave an appearance very similar to a large show window. The reflection of light from the floor and walls gave a comfortable and cozy feeling and added to the attractiveness of the booth.

The arrangement of the appliances was carefully thought out in order that they might be placed not only in the order of their importance as domestic devices but also in the order in which they would have the greatest sales value. Directly in the center, two electric ranges were mounted on a revolving platform which rotated throughout the hours during which the exhibition was open to the public. This moving display proved well worth while as it drew attention to the booth. The arrangement of aisles was such that when once drawn to the booth the prospect received a natural invitation to enter and to look over the other appliances on display. Four salesmen were on hand at all times to receive visitors to the booth and to explain the operation of the various devices as well as to answer all questions which might be asked. The arrangement of aisles in the booth made it very easy for the salesmen to pilot prospects throughout the entire exhibit and made easier and more successful the explanation of the various appliances.

A feature of the exhibit which commanded a great deal of attention and which aroused the interest of the women was the actual cooking which was done on two electric ranges.

It is estimated that at least 80,000 people out of the 95,000 who visited the fair also visited the booth. Each person who stopped at this exhibit was given a ticket which entitled him or her to a chance on a drawing held each night and the prize for which was some electrical appliance. Space was provided on the backs of these tickets for the salesmen to make such follow-up notes as would help in closing sales at later dates. Inasmuch as all tickets were deposited in order to take part in the daily drawings a vast amount of prospect material and data was obtained.

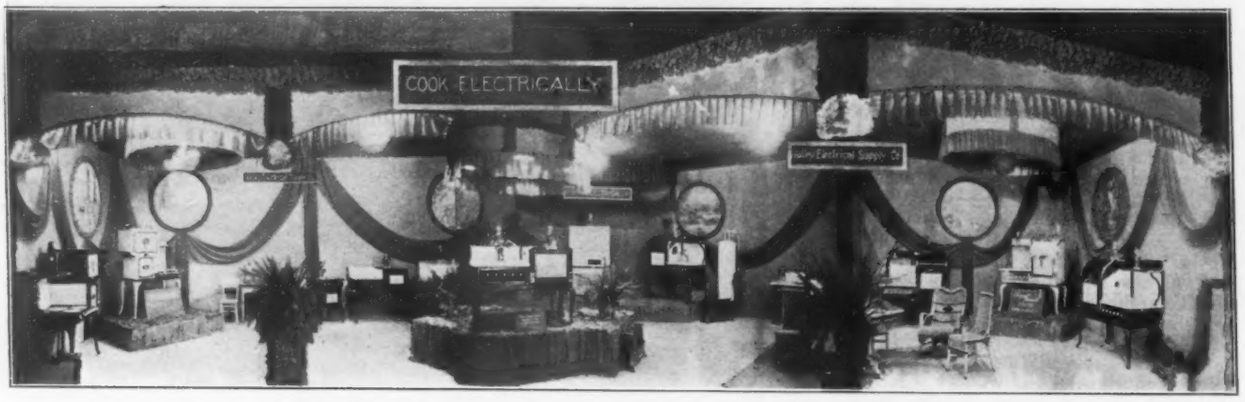


Exhibit of the Valley Electrical Supply Company at the Fresno County Fair.

The Point System a Base for Salesmen's Quotas

Spokane Company Uses Differential Point Basis to Get Equal Means of Rewarding Electric Washer Salesmen

To develop a system of reimbursing and rewarding salesmen during any particular sales campaign has been found by most sales managers to be a most difficult problem. The aim of the sales manager is of course to increase sales the greatest amount possible and at the same time reward salesmen in proportion to their share in the gross volume.

Total volume of sales as a means of rewarding salesmen is not a fair way to handle the problem because as all salesmen know, the opportunities for making sales are not the same in each salesman's territory. Some provision must therefore be made for the varying opportunities of the salesmen.

The quota system, when taking into consideration centers of wealth, population, etc., has been found to be one of the most just means of determining the awards to be made to salesmen at the end of the sales campaign, because under this method of apportioning the volume that it is designed to secure, allowances can be made for the territories covered by the various salesmen. This system is exceedingly valuable when only one item is included in the drive being conducted, or when the sales manager does not wish to push any one item listed among those included in the campaign. If, on the other hand, he desires to push some of the articles more than others, the quota method will need some slight alterations.

In a sales campaign conducted in Spokane, Wash., recently the Washington Water Power Company featured a line of electric washing machines, using the quota system among its salesmen with only minor alterations. In the first place, it was determined that the quota assigned to each salesman should be listed in points and that the three types of washing machines being featured should each be given a different rating in the point system. Each salesman was given a quota based on total points on the following arrangement:

For the sale of a Thor No. 32	20 points
For the sale of a Thor No. 25	15 points
For the sale of a Hurley No. 45	10 points

The total quota in points given each of the six residential salesmen working in Spokane, depended upon the size and character of the individual territory. The Washington Water Power Company agreed to give a bonus of $20 to each salesman who reached the quota assigned to him and in addition salesmen who scored points over their quotas received 5 cents per point for each point over the quota. The company also set aside 50 cents for each machine sold and placed this sum in a pool which was divided each week among the three salesmen making the highest percentage of their quotas. The salesman with the highest percentage received one-half of the pool, the second highest one-third and the third man one-sixth.

Additional compensation for salesmen was provided by the Hurley Machine Company and the Washington Electric Supply Company of Spokane, distributor of Thor products. Each of these concerns donated $25 to be awarded in two prizes. The first prize of $30 went to the salesman who oversold his quota by the highest percentage and a second prize of $20 was awarded to the man with the second highest percentage of points over his quota. The first prize was won by A. E. LaCroix who oversold his quota by 57 per cent, and J. R. Weideman with total points 15 per cent above his quota won the second prize.

As a result of the sales campaign, the Washington Water Power Company feels that the quota-point system that it used was not only a means of setting an equal goal for each salesman but that it also tended to cause the salesmen to exert especial effort to sell the higher priced class of washing machines. This theory is substantiated by the results of the sales which were as follows:

Thor No. 32	27 per cent of sales
Thor No. 25	42 per cent of sales
Hurley No. 45	31 per cent of sales

The sales campaign extended over a period of one month, starting the first of November and closing on the last of the month. During that time 407 washing machines were sold by the company's salesmen in Spokane and in towns on the lines of the company. Gross sales amounted to $55,000, more than double the number of machines being sold than in a similar campaign a year previous.

To aid the salesmen during the campaign a broadside was sent to each customer on the central station company's lines. This piece of literature mentioned each of the three washing machines being featured in the sales campaign. Advertising was also used in three of the Spokane daily papers. Approximately 1,000 in. of space were used in telling the public of the advantages of electric washing machines.

WHY NOT SMILE ALL OF THE TIME?

By JOE OSIER

"To give grudgingly is really not to give, but to have taken away."

This proverb, I firmly believe should be learned, preached and practiced by every man engaged in the electrical industry—

Provided he purposes prospering and—

I know that the real businessman will discover that the adoption and use of this saying will mean an extra influx of—

Tin in the till—because—

It is of little value to advertise superior service unless that service is given gladly—

Given with a smile.

Anything agreed to with a scowl and surly words, might as well not be conceded—still—

In spite of the preachments, above produced, I do not mean to intimate that the contractor-dealer, jobber or anyone in the electrical game should—

Turn over his shop, store or place of business to a customer because that customer comes wolfing with a grievance—

Real or fancied,—because—

Ofttimes it is wisdom to "Yes" and not yield; however—

"Yessing" or yielding—do it with a smile—for as the poet says:—

"A smile is worth a hundred groans in any market."

Too many businessmen, or men in business, because they have Ol' John Public's—

Sugar in their socks—

Bully and browbeat that little, inoffensive, mutton chop whiskered individual when he comes to register a complaint. Seeing they have it on him—

Why not a little of the pup's genuine effusiveness when handling our trade?

Like a tent—

They yell him down—talk him out of the league and flatten him like a phonograph record—

Even though they know his claims are correct and his cause just—and—

What do they gain?

And I answer: They win the argument and lose a cash customer—and—

The businessman who loses a paying patron is paging trouble and will soon be headed down the long, wrong trail—

Winning arguments with himself, only.

Happy moments for the boss when he reads the returns from "SMILE SERVICE."

Naturally, misunderstandings will arise and the Johns and Janes will storm the gates and demand blood, but—

The smart men in the game will hold their tongues and tempers and—if they smile—

Will keep the customers coming.

Go ahead and criticise—Ku Klux me if that is your pleasure—and, still I'll say:—

Do it with a smile. A smile costs nothing but it is a wonderful good will builder.

Checking Up on the Number of Appliances in Use

Greeley Company Gives Service to Customers While Making Survey of Residential Application of Electricity

To secure an accurate count of the actual number and nature of electrical appliances in use in the homes of any city has been found to be a most difficult problem. When the concern desiring to secure the information also wishes to know just what appliances each particular housewife owns the task of obtaining the results becomes even more difficult than before.

When such definite information is needed plans for some sort of a survey must be prepared. A questionnaire sent through the mails if sent to a large number of homes will give a representative answer showing the average number of appliances in use, but the results obtained will not give the concern sending the questionnaire out, direct information which will tell what appliances are in use in individual homes.

To determine the character of the electrical equipment in use in any particular home, the personal solicitor has been found to be the only satisfactory investigator and even then much diplomacy and tact must be used. The average housewife does not like to be questioned as to what she has in her home and in many cases will refuse to give the investigator any information at all. If the man who comes to make the survey arrives with only a list of questions to be put to the housewife, he will find, in most cases, that the results will be far from satisfactory.

If, however, the investigator calls as a person who is prepared to render some service to the housewife, he will discover that in return for his aid she will be willing to assist him. Thus if the investigator can announce himself as a person who is sent first as a service representative, then the housewife will be more ready to admit him to her home and to answer any questions that he may ask in connection with his service survey.

Toward the end of securing definite information regarding the ownership and use of electrical appliances and illuminating devices by its customers, the Home Gas & Electric Company of Greeley, Colo., has recently adopted a plan which has been found to be most satisfactory. The company has followed the example set by some of the larger central station companies, in various parts of the countries, and has started a residence survey of its customers. The survey was called a meter test and inspection as the investigator was a man fitted to do these things in addition to securing the desired information.

The Greeley central station company does not manufacture or distribute gas as might be indicated from the name and consequently the present survey is confined to conditions solely electrical. Although the survey was started a number of weeks ago, no complete analysis of figures has been made as yet, according to L. R. Storey, general superintendent of the company under whose direction the campaign is being staged.

However, the information obtained to date has in many cases astounded both Mr. Storey and Fred Norcross, general manager of the company, and former president of the Colorado Public Service Association. To find that certain customers were living in "electrical homes," judging from the reported number of appliances owned and used, proved to be a considerable surprise to officials of the company.

When conditions diametrically opposite were reported, the commercial department was immediately provided with data on the lack of appliances in order that a representative of the company could call at the earliest opportunity, to sell anything from an iron to a washing machine. No definite figures are available on this follow-up but it is definitely known that more good leads have been provided as the result of the survey than from any other system yet tried in Greeley, and inasmuch as appliance sales are rapidly increasing, considerable credit is given to the survey.

That electric irons lead all other appliances in everyday use is definitely known. Just whether that condition prevails in one locality or to what extent it will prove general, the information is lacking. However, in the case of the first 300 homes visited in Greeley, it was found that over 90 per cent were equipped with electric irons. As soon as the inspection is completed in that city, data will be compiled on the use of other appliances and a similar scheme will be employed in making the survey of the other eight communities served by the company, according to Mr. Storey.

Greeley, a city with a population of approximately 14,000, has about 4,500 central station customers. Naturally, the operating and commercial departments are not sufficiently large to permit the frequent withdrawal of personnel required to make the inspection and survey. However one man, a competent meter reader, was relieved from that work to carry on the special mission and at present is devoting all his time to it.

According to Mr. Norcross, the general manager, there is an underlying idea of improved public relations in the survey. In numerous instances, the opportunity has been presented to improve the already good relationship with a number of customers by showing them the way to better illumination and more efficient usage of labor-saving equipment.

The survey is a house-to-house proposition and a separate report is being made on each house visited. The blank forms employed are designed to give a complete report on the meter installation, also the appliances, heavy duty equipment, lamps, wattage, and total connected load.

METER TEST AND INSPECTION

Order No..... Date..... By..... Meter Co. No.....

Name..... Town..... House No..... Street.....

Shop ..... Periodic..... Cust. Prem..... Complaint..... Inst.....

Flat Rate Service.....

Neutral Tagged-Found..... Left..... Series Trans..... Pot. Trans.....

Conditions Found-Service Wires..... Meter Loop..... Main Switch.....

Creep..... Seal..... Main Fuse..... Wiring Grounded.....

Meter Location .....

METER DATA: Co. No..... Mfg. No..... Amps..... Volts..... Phase..... Wire.....

Make..... Index..... Dial Const..... Disc. Const.....

BEFORE ADJUSTMENT					AFTER ADJUSTMENT			
	REVOLUTIONS		Stand. Const.	Acc.	REVOLUTIONS		Stand. Const.	Acc.
Coil No. 1	Meter	Standard			Meter	Standard		
1/10 Load								
Full Load								

JEWEL { Good, S. / Bad, D. } .....MAGNETS { Clean, Dusty, / Iron Filings, } .....TOP BEARING { High, / Low, O. K. }

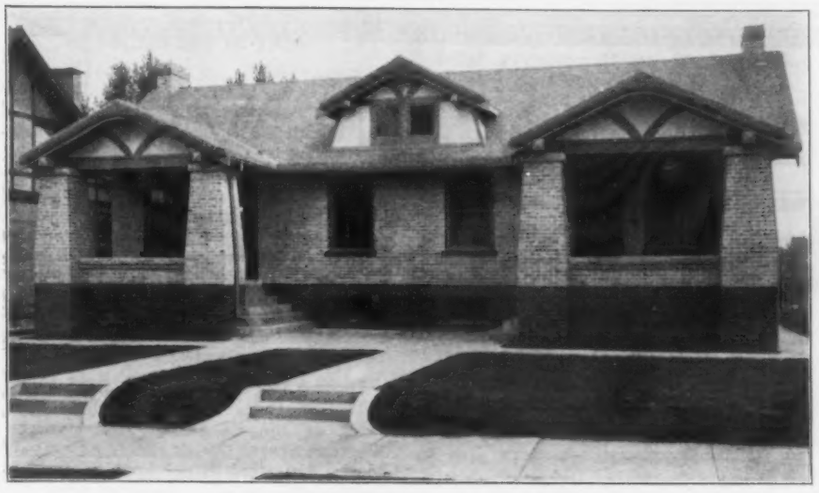
DIAL CONDITION..... TESTED BY..... DATE.....

Appliances		Watts				
Iron			Number of Active Rooms			
Washer			Sockets in Active Rooms			
Heater			Av. Size of Lamps			
Sweeper			Watts in Active Rooms			
Toaster			Total Number of Rooms			
Grill			Total Number of Sockets			
Percolator			Total Lamps Load			
			Total Appliances			
Total Appl.			Watts, Lamps & Appliances			
Range						
Rectifier						
Motor			Power Load Connected			
			Total Connected Load			

READING. B. T..... A. T.....

REMARKS: .....

Reports in the survey being made by the Home Gas & Electric Company of Greeley, Colo., are made on this form which is made out in duplicate.



Exterior view of the electrical double bungalow recently opened to the people of Denver, Colo.

Electrical Double Bungalow Displayed in Denver

Descriptive Booklet Presented to Visitors Tells of Advantages of Having Home Completely Electrified

Is the public thirsty for electric home information? Carl S. Homsher of the A to Z Electrical Company, Denver, Colo., contractor, and the T. D. Harris Investment Company, home builders, following an electrical double bungalow exhibition recently put on cooperatively by the two, have answered the question in the affirmative. Mr. Homsher had the double bungalow built for himself and while he was doing this, he made it a model of electrical wiring and equipment. He was proud of the home, and so was the building company.

The two saw an opportunity to put on an exhibition which would react to the advertising benefit of them both. They advertised the exhibition modestly in a Sunday paper, and that day visitors swamped the sponsors. Fifteen hundred people went through the home on the first day it was opened. It was kept open throughout the week, from three o'clock to nine o'clock daily. On many nights attendance was so great the closing hour had to be moved ahead to ten o'clock.

The fact that Denver had a cooperative model electric home had not taken the edge off the public's interest in the demonstration, but seemingly had the effect of whetting it. Since this display, a second cooperative home has been visited by 8,982 people.

The electrical double bungalow gave the public an exhibition of a model residence structure of a new type. While the cost of the present bungalow, as equipped, is not given, the information that the investment company offers to build a duplicate, except for the lot, for $17,500 is pertinent.

As regards its basis, this electrical double bungalow also has individual and very interesting features. The enterprise was conducted to produce advertising benefit directly for two parties—a home building company and an electrical contractor. Both parties furnished guides for the home. The building company considered the home, as an advertising enterprise, so important that it practically suspended most other selling activities, including classified advertising, and put nearly its whole force on the electrical double bungalow enterprise.

Neither party made any secret of satisfaction at the number of live prospects secured directly, and both realized the prestige building and general good will advertising benefit of the exhibition.

A 12-page booklet was distributed to all visitors. In makeup, this reflected the distinctive sponsorship under which the home was exhibited, having marked differences from the 1922 booklet distributed by the Electrical Cooperative League of Denver. After a preface, the principal topic treated in detail was, "Electrical Wiring As It Should Be in a Modern Home." The following quotation from this will indicate the editorial treatment, besides furnishing the reader specific information concerning the bungalow itself:

"The number of light outlets, switches and convenience outlets and type of fixtures used in this modern bungalow are as follows:

"Front Porch—One bracket outlet with a Verd green lantern and illuminated house number, controlled from both inside and out by means of 3-way switches. One door push to operate bell in kitchen.

"Living Room — One ceiling outlet with a 5-light butler silver and black candle fixture, controlled with switch at front door. Three duplex convenience outlets or receptacles in base board and one in center of floor.

"Dining Room—One center ceiling outlet with an enclosed unit of radiant decorative glass of Adams and Blue with hanger of butler silver and black, controlled with two 3-way switches at kitchen and hall doors. One duplex outlet in baseboard, one in center of floor and one in wall near sideboard. One duplex plug for radio outlet in baseboard. One daisy door tread under dining room table to operate a miniature buzzer in kitchen.

"Front Bedroom—One center ceiling outlet with an enclosed unit, controlled with switch. Two duplex convenience outlets in baseboard and one in wall.

"Rear Bedroom—One ceiling outlet with a 3-light candle butler finished fixture and decorative candle shades, controlled with switch. One duplex convenience outlet in baseboard and one in wall. Each of the bedroom closets has one ceiling outlet with automatic door switch to control same. The fixtures are chain pendants provided with pull chain sockets so as to make it possible to turn off light if desired to leave door open.

"Sleeping Porch—One ceiling outlet with chain pendant, shade and frosted lamp, controlled with switch, and one duplex wall receptacle.

"Center Hall—One ceiling outlet with ceiling fixture and switch.

"Bathroom—One ceiling outlet, controlled with wall switch. Two bracket outlets with keyless receptacles and 25-watt frosted lamps, controlled with switch. One duplex convenience outlet.

"Kitchen—One ceiling center outlet with an enclosed unit made of radiant glass, controlled with switch. One bracket outlet over sink, independently controlled by pull chain, and fitted with a 50-watt white Mazda lamp. One exhaust fan in ceiling. (Special attention is called to this, as the owner has worked out a scheme whereby the fan is concealed and provided with a shutter to close if desired, and has used a switch that needs no oiling.) The fan is controlled with switch and "Bull's Eye Signal." One duplex convenience outlet in the wall near range, one over the table, one single plug at side of kitchen cabinet and one plug in base for electric refrigerator. One 12,000-watt electric range outlet is controlled with switches as required by city ordinance.

"Rear Porch—One ceiling outlet with black ceiling band and receptacle, operated at the same time as the center ceiling laundry, boiler room and coal bin lights, with a set of 3-way switches, one in kitchen and one at rear door entrance to basement. One 3-way switch to control garage and yard lights. One single convenience outlet. One door push to operate buzzer in kitchen. The rear porch also contains the light and power cabinets and meters. The bell-ringing transformer for bell and buzzers is placed in the light cabinet. The power cabinet has a 3-pole double throw switch to serve an electric range in kitchen and ironer in laundry."

Completing the description of the double bungalow in this manner, the booklet gave a list of the appliances of which the installation facilitated the use. Then—showing the special interests of the builder—came a list of "other comforts of the home" of a non-electrical nature.

A table was published of approximate operating cost in cents per hour of a long list of electrical appliances, also statistics showing the small percentage, relatively, paid for electrical labor in a well constructed home compared with other labor groups. Two pages were occupied with a list of the business firms which had participated in the erection and furnishing of the home.

The system adopted for showing was one whereby the same guide took a group all the way through the house. This was considered superior to the one-guide-for-each-room method.

INDUSTRIAL NEWS

Power Company Contests Rights of Aberdeen Municipal Project

The latest developments in the Wynooche power fight in the efforts of Aberdeen, Wash., to establish a municipal power plant with $2,000,000 bonds recently voted, is the filing by the Grays Harbor Railway & Light Company on the Wynooche River water rights. The city is endeavoring to get these rights and additional water rights from Joseph Malinowski but has been restrained by a temporary injunction.

The light company has also entered the fight with a series of large display advertisements in the Grays Harbor newspapers, presenting the power company's side of the issue. Declaring itself to be "among the largest taxpayers in the county," the corporation states in its advertisements that its "organization would be vitally affected by the determination of Aberdeen to build a competing and unnecessary duplication of our facilities for serving them," and insists that its articles will be written on "broader, more disinterested grounds—the welfare and prosperity of the whole community."

A recent ad discussed the difficulty of securing an accurate and competent estimate of the cost of the proposed project, and attacked the cost estimates of the Skagit project under development by Seattle, and the Cushman power project recently started by Tacoma.

The light company's application contemplates an expenditure of $1,700,000. While the city and company's plans are somewhat different both projects would cover practically the same portions of the river, and therefore be in direct conflict. It is by reason of the reservoir raising the waters upstream within the national forest that the company's application for permit was made to the Federal Power Commission, and it is taken as further indication that the company intends to contest to the limit the rights and project of the City of Aberdeen for the mastery of the electric power field of the Grays Harbor territory.

Public Service Company to Build New Denver Substation

Equipment has just been ordered by the Denver division of the Public Service Company of Colorado for a new substation in the main residential district, which when completed will connect the entire generating and transmission system of the city as planned by the engineering department of the company in connection with the future requirements for distribution when energy is supplied by the new Valmont steam plant, north of Denver. It will be located on the property now partly occupied by the Harrison Street gas holder.

The company has just completed the installation of a new 50-kw. motor-generator to supply direct current exclusively to the stoker motors in the boiler house of the local Lacombe station. The installation was supervised by W. D. Hardaway who will also be responsible for the interconnection with the new Harrison substation.

In keeping with the Doherty policy of making friends with the neighbors in the territory adjacent to substations and gas holders, the company has announced a prize contest for employees seeking a suitable name to designate the residential units, based on the landscaping and architectural design of those properties. V. L. Board, general superintendent of the company, heads this activity.

Last Unit of Long Lake Plant Now Being Installed

The fourth and last generator unit of the Long Lake development of the Washington Water Power Company was recently delivered by the General Electric Company and is now being installed. The spillway for this power plant is the second largest in the world and is located in a narrow gorge of the Spokane River, 35 miles west of the city of Spokane.

Each of the four units for this installation is a 17,400-kva., horizontal water-wheel driven generator with a capacity of 19,500 kva. with forced ventilation. Two units, developing 45,000 hp., were completed in 1913 and 1915 and the third was installed during 1917-1918. The last unit will bring the plant to the full capacity of 90,000 hp. for which it was originally constructed.

B. C. Electric Completes $200,000 Transmission Line

The British Columbia Electric Railway Company has completed the 35-mile high-tension line from North Vancouver to Britannia Mines, at a cost of $200,000, and the power was turned on for the first time on the second day in the year. The time of completion was opportune, as there have been severe frosts during the last few weeks, and severe cold effectively dries up Britannia Creek, which is the mining company's source of power. The contract between the mining and the electric companies is for a supply of between 4,500 and 6,000 hp., delivered at 34,000 volts, and is the biggest single contract for power that the electric company ever has made. The power is used as an auxiliary to the mining company's own power plant, such auxiliary power previously having been supplied by a steam plant.

Penstock at El Dorado Plant of Western States Co. Bursts

During the course of the preliminary filling of the recently completed penstock of the El Dorado plant of the Western States Gas & Electric Company on the American River near Placerville, Calif., one of the sections near the power house was ruptured by the pressure and opening of the plant has been delayed at least two weeks until another section can be rushed from the East. Damage other than to the pipe itself was comparatively slight, neither the plant nor the generating equipment being harmed.

The plant is designed for a head of 1,900 ft., of which approximately 1,800 ft. had been applied when the break occurred. At the point where the rupture occurred the penstock consists of 20-ft. sections of 30-in. lap welded pipe. The exact cause of the break has not been ascertained.

The Western States Gas & Electric Company had planned to have the new station on the line by Jan. 1, 1924. The accident will delay the opening at least two weeks.

Action on Power Is Delayed by San Francisco Supervisors

Voting on resolutions authorizing the California State Railroad Commission to prepare a valuation of the lines of the Pacific Gas and Electric Company and the Great Western Power Company serving San Francisco was postponed eight weeks at the last meeting of the retiring board of supervisors of that city on Jan. 7, 1924. The reason given for delaying the vote on the resolutions was that of allowing the incoming members of the board sufficient time to study the various proposals regarding the distribution of Hetch Hetchy power.

Supervisors who voted to delay action held that the question of water and not power was the more important and that a decision regarding the consummation of the water supply project should be reached before consideration was given to the municipal distribution of power.

California Oregon Power Co. Starts Link River Plant

Work on the new power house of the California Oregon Power Company on Link River has started as announced by Paul B. McKee, general manager of the company. The excavating work will be done on company force account. If all goes as planned the company will be ready soon to pour the concrete for the power plant foundation and install machinery. The plant will cost about $500,000 and will have a capacity of 4,500 hp.

San Joaquin Will Spend Total of $6,000,000 in 1924

Budget estimates of 1924 expenditures of the San Joaquin Light & Power Corporation and its subsidiary companies total more than $6,000,000, according to A. Emory Wishon, general manager of the company.

Although the total is less than 1923, it actually provides more for extensions and general development work, as the cost of the new office building in Fresno was included in last year's outlay. The $6,000,000 will take care of the requirements of the San Joaquin Light & Power Corporation, the Midland Counties Public Service Corporation and the Fresno City Water Corporation.

The San Joaquin Light & Power Corporation's expenditures will be in excess of $5,500,000. The cost of additional distribution lines and services to supply new consumers throughout the valley is estimated at $1,300,000. More than $550,000 will be expended for improving present distribution lines and increasing substation capacities to handle the growth of the load. Enlargement of the ditches on the Crane Valley system to provide more generating capacity, further development work on the Kings River project, new transmission lines and general improvements to the company's fourteen power plants will require an outlay of $500,000.

Other improvements in service, such as new gas holders and mains in Selma and Merced, gas mains in Bakersfield and water mains in Selma, buildings and sundry betterments will entail expenditures of $650,000. In addition to this construction work of $3,000,000, the corporation will expend $2,500,000 in labor and materials for the operation of its electric, gas, water and railway systems.

The Midland Counties Public Service Corporation, operating in Coalinga and on the coast, plans extensions to its system to cost $300,000, of which $200,000 is to provide for lines and services to new consumers and $100,000 for improvements in substations and existing lines.

The Fresno City Water Corporation, to provide water service to new homes, stores and industries in Fresno, will spend $200,000. Of this amount, $20,000 will be for new pumping plants and $180,000 for enlargement of the distributing system. It is expected that the growth of Fresno in 1924 will require the laying of 75,000 feet of new mains to supply new consumers and to further improve the service.

Power Commission Threatens to Halt Girand Project

The Department of Justice has been requested by the Federal Power Commission to take steps to prevent James B. Girand from proceeding with the construction of his hydroelectric project at Diamond Creek on the Colorado River, according to dispatches from Washington, D. C. Mr. Girand is proceeding with the work under a permit from the Arizona State Water Commissioner which expired last month unless active operations on the job were commenced. The Federal Power Commission refused to grant a permit for the project several months ago until a definite decision on the Colorado River compact had been reached by the states interested. Plans for the construction of a dam at Boulder Canyon by the Federal government are to be introduced before Congress by Representative Swing of California and it is believed that this may have something to do with the action of the power commission.

Federal Power Commission Grants Preliminary Idaho Permit

The Federal Power Commission has granted a preliminary permit to the Southern Idaho Land & Power Company at Weiser, Idaho, for the power project on Crane Creek in Washington County. The company proposes to build a diversion dam, storage reservoir and power house to have a capacity of 25,000 hp., which will be marketed on three irrigation projects in that vicinity.

Westinghouse Lets Contract for Second Emeryville Unit

The Westinghouse Electric & Manufacturing Company has let the contract for the construction of the second unit of its plant at Emeryville, Calif. The cost of this new factory is said to be approximately $500,000 and construction work will be started at once by the Dinwiddie Construction Company, of San Francisco.

Among other features the new plant will contain a large assembling shop, repair shops, a zone warehouse, service shops and other facilities. The three buildings were designed by Bernard H. Prack, consulting architect of Pittsburgh, Pa., and will each be three stories high and will each have a frontage of 66 ft. In one wing of the unit all repairs to electrical machinery will be made and in this building also will be manufactured switch panels and switchboards. The second wing of this unit will be given over to assembling and the third wing will be devoted at present to storage.

The new plant will be located on Peladeau, Powell and Landregan Streets in the heart of the industrial section of Emeryville and will increase the manufacturing capacity of the company and at the same time will improve the service facilities for the western trade. This plant will be under the direction of C. E. Heise, San Francisco district manager.

Mountain States Power Company Increases Coos Bay Plant

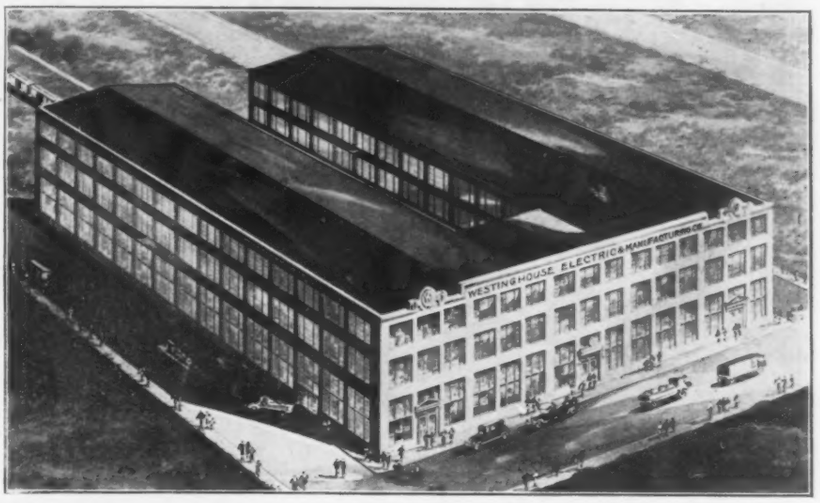
The Mountain States Power Company is to increase its power plant at Coos Bay, Ore. The expansion involves a new electric plant which is to be built in North Bend on property to be purchased from the Stout Lumber Company. The cost of this plant will be between $600,000 and $750,000. Besides the plant, which is to be of concrete and piled high enough to avoid trouble from high tides, the company will install hogs at several mills for grinding refuse lumber, and construct several barges for transportation of fuel when urgency requires.

The new plant will run in connection with the present plant situated on the property of the Coos Bay Lumber Company in Marshfield and will have a generating capacity of 5,000 kw. Both plants will operate continuously, but either will have sufficient power to handle the company's load if one breaks down. The 11,000 kw. available at the Coos Bay Lumber Company plant was found inadequate to supply the mills there. The Mountain States Power Company has been obliged to install, in addition to 900 service connections this year, 2,500 hp. in units to be used for manufacturing industries. This plant and the one constructed at the Coos Bay Lumber Company grounds during 1923 make an investment of nearly $1,000,000 for the Mountain States Power Company in two years.

Newspaper Comments on Safe and Sane Christmas This Year

Due to electricity, says a San Diego newspaper, that city had a "safe and sane" Christmas this year. The "safe and sane" was transferred from its usual Fourth of July associations because firemen of San Diego attributed the entire absence of Christmas tree fires this year to the more general use of electric lights on Christmas trees, replacing the old-time candles.

Each Christmas previously, the firemen stated, there had been two or more fires started from candles on Christmas trees igniting nearby draperies and causing sometimes serious conflagrations. This year the firemen stayed at the stations and enjoyed a real holiday because of the use of electric tree lights.



Architect's drawing of new Emeryville plant of Westinghouse Electric & Manufacturing Company.

Municipal Ownership Advocates Meet in Seattle

Conference Places Stamp of Approval on Bone Bill, Condemns Reed Measure and Appoints Committee on Erickson Act

Discussion of the form which the state ownership bill which will be presented to the voters of Washington next November will take, was the chief topic of discussion at a meeting of 75 municipal ownership advocates held in Seattle Dec. 20, 1923. Emerson Cross, city attorney of Aberdeen, which has recently voted $2,000,000 in bonds for a municipal hydroelectric plant, presided at the meeting.

The conference adopted a resolution condemning the Reed bill, the referred measure which calls for a 5 per cent gross tax upon all power sold by municipal plants outside the corporate limits of the cities owning the plants and endorsed the Bone bill, a proposed initiative measure which will give cities the right to sell power outside their corporate limits.

The conference also passed a resolution endorsing the Super Power League which is fostering the so-called Erickson bill. This resolution also endorsed the measure which has been prepared by T. J. L. Kennedy, corporation counsel for the Seattle Light Department, authorizing cities to condemn telephone systems after existing franchises expired.

A special committee with J. D. Ross, superintendent of the Seattle Light Department, as chairman, made an extended study of the Erickson bill and reported favorably on the measure after making a few minor amendments.

The Erickson measure provides for the creation of power districts similar to the organization of port districts. These districts can include one or more counties, or only municipalities. Each district has three salaried commissioners, the salaries ranging according to population from $500 a month downward. The districts are authorized to make a mileage levy, issue bonds and acquire hydroelectric power sites or transmission and distributing lines.

Amendments to the bill recommended by the committee provide for units smaller than the county for public power development districts, and exempt municipally owned plants from condemnation under the sections of the bill which provide for a state-wide public power development. These amendments, Councilman Oliver T. Erickson, author of the bill, states do not affect the principle on which the measure is based. The provision exempting the present municipal plants from condemnation under the proposed bill was adopted as a result of charges that the state-wide power plant was an attempt of Seattle to unload the Skagit development.

It is generally expected that the action of the special committee will be endorsed at the general conference to be held later.

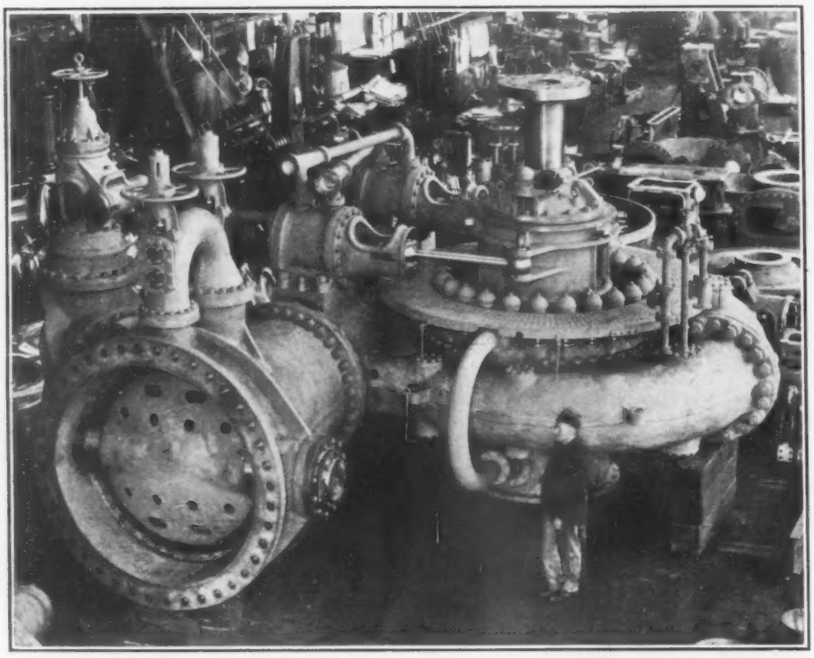
World's Highest Head Reaction Type Turbine Completed

The world's highest reaction type turbine has just been completed by the Pelton Water Wheel Company of San Francisco and shipped to the Oak Grove plant of the Portland Railway, Light & Power Company. The accompanying illustration shows the assembled unit just before being shipped from San Francisco.

The turbine will operate under an effective head of 860 ft., at 514 r.p.m., driving a direct connected 25,000-kva. vertical generator. Installation work will start during the present month.

Several interesting features have been incorporated in the design of the new turbine. This is the first turbine to have the butterfly valve mounted directly on the turbine casing. In addition to the 72-in. butterfly valve a Johnson valve will be installed at the upper end of the penstock. Other features embodied in the turbine are: rubber seal rings, Moody type draft tube, disk type guide vanes and the Taylor forced feed lubrication system. This turbine has the same type of governor control as that used on the Moccasin Creek units for the City of San Francisco which enables the operator to throw the unit over from automatic to hand control, on a moment's notice.

The Oak Grove plant of the Portland Railway, Light & Power Company is to be placed in operation during July of this year. The development consists essentially of a 60-ft. concrete diversion dam on the Oak Grove Fork of the Clackamas River; a 6½-mile steel pipe flow line 9 ft. in diameter; a surge chamber with hour-glass section; a 1,360-ft. penstock with a top diameter of 8 ft. and a bottom diameter of 6 ft., and a power house with an ultimate capacity for three units, the first installation being one 25,000-kva. generator. Power will be transmitted to the City of Portland over a 60,000-volt, 70-mile steel tower transmission line. The initial unit will cost in excess of three million dollars and the ultimate development of 75,000 kva. will cost ten million dollars.



Shop view of the world's highest head reaction turbine built by the Pelton Water Wheel Company for the Portland Railway, Light & Power Company, Oak Grove plant.

General Electric Company Opens KGO Broadcasting Station

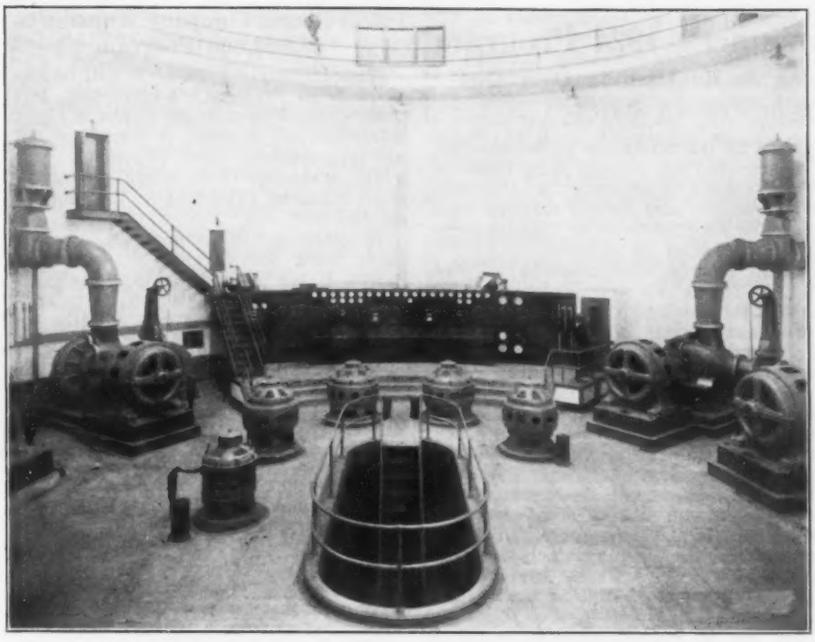
With song, speech and other appropriate ceremony the General Electric Company's new radio broadcasting station KGO, in Oakland, Calif., was officially opened on the evening of Jan. 8, 1924. This station, which is at present using 1,000 watts, is capable of sending at twice that force and is expected to be heard from 6,000 to 9,000 miles away, the distance, of course, varying with atmospheric conditions. The station is provided with a system of remote controls by means of which music and entertainment may be picked up from theaters and halls in Oakland and other nearby cities and broadcast.

Steel towers 150 ft. high support the antenna and under the antenna, but about 14 ft. above the ground, is a network of wires covering an area of approximately 150 ft. by 300 ft. The power house is also beneath the antenna system and contains six large motor-generators and other equipment.

KGO will broadcast on Tuesday, Thursday and Saturday evenings from eight to ten o'clock, operating on 312 meters in order not to interfere with other stations. This is claimed to be the largest radio broadcasting station in the world.

Agitation for City Ownership Started in Walla Walla, Wash.

Agitation has been started in Walla Walla, Wash., for the construction of a municipal light plant. Estimates have been prepared indicating that the city can construct a plant for approximately $750,000 and plans are being discussed for a bond issue for that amount. Failure of the public service company serving the city to reduce rates is advanced as the reason for the entrance of the city into the light and power business.



Interior of new filtration plant at Sacramento, Calif.

California Filtration Plant Power Equipment

The new filtration plant which will supply clear water to the people of Sacramento, Calif., is served with hydroelectric power by both the Pacific Gas and Electric Company and the Great Western Power Company, and is so designed that each company may serve only half the plant or, if desirable, may assume the whole load. If one supply should fail suddenly, the other supply automatically receives the load.

The power is supplied at 11,000 volts through two underground cables in two separate ducts terminating in the high tension bus and switching structure of the plant. Six 500-kva. transformers have been installed in the plant with provision for additional space for future needs. After being stripped down from 11,000 to 2,200 volts, the power enters the secondary bus structure.

On the primary bus structure are mounted the switching devices, the 15,000-volt, 600-amp. "B-2" oil circuit breakers, which are electrically operated from remote control and handle the incoming power circuit, and the main feeder circuit from each bank of transformers; also the smaller "F-2" oil circuit breakers of 7,500-volt, 300 or 500-amp. capacity likewise electrically operated from remote control, which handle the starting and running of each individual motor.

The secondary bus structure carries all the type "CO" relays, current transformers, solenoids and type "S" disconnecting switches necessary for the protection and operation of the plant. Either structure can be operated as a unit or separated into two distinct structures, each section of which can be operated by hand or automatically by electricity.

The electric motors on the main floor of the station are all Westinghouse squirrel cage induction type. The high lift pumps are driven by three 900-hp. motors at 870 r.p.m. and two 700-hp. motors at 1,170 r.p.m.; the low lift pumps are driven by vertical motors, two of 275 hp. each, two of 175 hp. and one of 125 hp. The drain and wash water pumps are driven by four motors of 300 hp. total capacity.

Tacoma Advertises Bond Sale for Lake Cushman Project

Bids for the purchase of the $4,000,000 of Tacoma light utility bonds, authorized by the city council to construct the first unit of the Lake Cushman power project, will be received by the city council Jan. 21, 1924. The bidders are requested to state at what interest rate they will take the bonds at par. The city cannot pay in excess of 6 per cent, and it is believed that a considerably lower rate will be obtained. City light bonds have sold at 5 per cent interest in the past. The successful bidders will have 20 days in which to obtain legal opinion on the validity of the bonds, and 10 days further to perfect the purchase.

A resolution by the council is expected to pass authorizing a call for bids upon the construction of the dam and appurtenances without awaiting the outcome of the bond sale, in order to save construction time.

Seattle Grants Time Extension to Skagit Contractors

The Seattle city council, upon advice of Chief Engineer C. F. Uhden of the Skagit project, and City Engineer J. D. Blackwell, has granted one month's extension of time to the firm of R. C. Storrie & Company, who have the contract to complete the tunnel at the Skagit hydroelectric plant. Under the new extension, which is the second one granted since the contract expired, the time limit expired Dec. 22, 1923, and the Board of Public Works is now considering whether a penalty shall be imposed on the contractors. Forest fires, bad weather and several minor strikes have delayed the work.

Property Valuation Fixed for Idaho Power Company

The Public Utilities Commission of the State of Idaho has placed a valuation upon the properties of the Idaho Power Company, as of June 30, 1923, of $16,182,380.87, a reduction of over $800,000 from the figure claimed by the company.

The rate of return on the company's investment was fixed at 7½ per cent on $14,640,284.98 of the valuation and at 5 per cent on the remainder, with an allowance for retirement reserve, maintenance, operation and taxes for the year ended Dec. 31, 1922, of $1,349,172, and for the year ended July 31, 1923, of $1,394,534. The increase was allowed because of the company's augmented taxes in Oregon this year.

These figures give an annual revenue of $2,569,660.16. The company has been contending that it needed at least $2,800,000, while the Southern Idaho Power Users' Association, which has been fighting to keep down the valuation of the company's property, has claimed that it should not be allowed more than $2,358,000.

The rate of return on property used especially for irrigation purposes has been fixed at 5 per cent in excess of the winter peak load. The question has been before the commission since 1919 without decision.

The commission allowed $726,275 for working capital, made up, among other things, of delinquent accounts, or an increase of more than $26,000 over the allowance as of Dec. 31, 1919, to cover increased delinquencies, principally irrigation accounts.

The rates in force throughout the territory served by the company were decreed discriminatory, and it was ordered that new rates, rules and regulations in conformity with the findings of the commission be filed within thirty days. The commission also ruled that the reduction in rates to irrigation consumers should be retroactive and that a rebate of $3.28012 per horsepower of demand be made upon bills for this service during the 1923 service.

Meeting Held by Women's Public Information Committee

The Women's Public Information Committee of the Pacific Coast Division of the National Electric Light Association held its first meeting of the year in San Francisco, Calif., on Dec. 29, 1923. Miss J. Frances Eman, of the Southern California Edison Company, Los Angeles, Calif., is chairman and presided. The meeting was called to consider the various phases of public utility information and publicity that are of interest to women and to discuss ways and means of promoting a greater knowledge and better understanding of public utilities by the feminine consumer and stockholder. The meeting was attended by the following: Miss M. Hinricks, of the Coast Valleys Gas & Electric Company, Salinas, Calif.; Mrs. M. Stevens, of the California Telephone & Light Company, Santa Rosa, Calif.; Miss Bertha J. Dale, of the Pacific Gas and Electric Company, San Francisco, Calif.; Miss Mabel Wick, representing the Tucson Light & Power Company, Tucson, Ariz., and Miss Clotilde Grunsky of the McGraw-Hill Company.

Pacific States Company Announces 1924 Program

Newspaper and Billboard Advertising to Be Used in Over One Hundred Cities and Towns in Western States

That the "Check" Seal campaign has been successful, that it has been a constructive force in behalf of better electrical contracting and that it has been of definite benefit to the electrical industry and the general public was the message given to members of the electrical industry at San Francisco by executives of the Pacific States Electric Company at a meeting in the Palace Hotel, Jan. 9, 1924. The meeting was one of a series which is being held in cities of California, Oregon and Washington to explain the details of the company's 1924 advertising campaign. Over 450 members of the industry attended the San Francisco meeting while 160 attended a similar meeting in Oakland the previous evening.

F. C. Todt, manager of the San Francisco district of the company, presided over the meeting. The first speaker was T. E. Bibbins, president of the company, who traced the history of the "Check" Seal movement and described some of the results obtained. He was followed by R. E. Fisher, vice-president in charge of public relations and sales of the Pacific Gas and Electric Company, who spoke on "Responsibilities of the Contractor and Retailer to the Public."

"Credits and Capital in Business" was the title of a paper presented by Charles Goodwin, assistant treasurer of the Pacific States Electric Company. Mr. Goodwin outlined some of the dealer's responsibilities to the credit man.

J. D. Barnhill, president of Evans & Barnhill, advertising counselors to the Pacific States Electric Company, outlined some of the business possibilities of the electrical industry on the Pacific Coast. Mr. Barnhill pointed out that with a normal construction rate of 21,000 buildings monthly for the three Pacific Coast states, 1920 was 68 per cent of normal, 1921, 90 per cent of normal, 1922 5 per cent above normal and 1923 25 per cent above normal. He stated that economists estimate that it will require at least five years of above normal construction to make up for the shortage which accrued during the World War. He brought out that in 1921 the average number of electrical outlets per building was 11.5, that in 1923 this average had been increased to 16.2 outlets and that the Pacific States Electric Company has set 25 outlets as the minimum to be reached. He estimated the present lamp business of the Pacific Coast states as 16.5 millions annually and showed methods that might be adopted to bring this business up to a total of 29 millions.

D. E. Harris, vice-president of the Pacific States Electric Company, described the campaign which will be followed out during 1924. According to Mr. Harris, newspaper advertising will be carried in the papers of 109 cities and towns, the papers having a combined circulation of 1,527,420. Advertising will also appear in the Sunset Magazine, the California Alumni Monthly and the Journal of Electricity. A total of 700 billboards will be used in 107 cities and towns during the year. All cities of over 2,500 population in California, Oregon, Washington, Idaho, Nevada and Arizona will be covered by both newspaper and billboard advertising. An idea of the growth of the campaign can be gained when it is noted that billboards were used in but 30 cities and towns during 1923 and advertising appeared in but 25 newspapers. Mr. Harris also stated that new job signs had been prepared for contractors and that plans had been perfected to have contractors' and dealers' advertising handled through the firm of Evans & Barnhill, should this service be desired. A new edition of "The Electrical 'How' for Housekeepers," a consumer booklet, has also been prepared for distribution.

The advertising plans of the merchandising department of the General Electric Company were described by R. E. Alvord of the San Francisco office of the company, who stated that his company would use 51 national magazines during the year, as well as local newspapers and billboards.

Other speakers during the evening were Thomas L. Emory, head of the Advertising Bureau of the American Newspaper Publishers' Association, and Charles Duncan of the firm of Foster & Kleiser.

Similar meetings to the one held in San Francisco will be held in Los Angeles, San Diego, San Jose, Bakersfield, Fresno, Stockton, Sacramento and other California cities. Present plans also call for meetings in Portland, Jan. 25, 1924, Seattle, Jan. 29, 1924, and Spokane, Feb. 4, 1924.

Billboards similar to this will be used in over one hundred western cities.

Puget Sound Company Announces $5,000,000 Program

Approximately $5,000,000 will be expended in western Washington this year by the Puget Sound Power & Light Company, of Seattle, in carrying out an improvement and expansion program, according to an official announcement made by President A. W. Leonard on Jan. 3.

In addition, he announced, preliminary work will be done on the company's Baker River project, the ultimate development of which, it is conservatively estimated, will call for an investment of many millions of dollars.

The 1924 program as announced includes:

Immediate construction of an additional unit of the White River power plant at a cost of more than $1,000,000, the unit to produce 23,000 hp.

Expenditure of $2,500,000 in building new transmission and distributing lines and making substation improvements.

Expenditure of $1,000,000 in making permanent miscellaneous improvements to other utility properties such as railways, water and gas systems.

Detailed announcement of the company's plans follows the brief announcement made by President Leonard upon his return from the East last November that several million dollars would be expended in increasing production facilities and in improving and extending service.

The Baker River project is in Whatcom County, near Concrete, in the Cascade Mountains, near the Canadian boundary line. The preliminary work to be done this year will bring the project to a point where extensive and rapid development at a reasonable cost will be possible.

Several years ago the company obtained two sites on the Baker River in preference to the rights it then held on the Skagit River, which were surrendered on the theory that development costs would be higher than on the Baker. The Skagit rights were subsequently acquired by the City of Seattle and are now being developed.

The White River power plant is the largest now owned and operated by the company. The first unit was built in 1912, with a capacity of 26,700 hp. Additional units constructed in 1918 increased the capacity to 61,660 hp. The unit now to be added will bring the capacity to 94,660 hp. This new unit will be in service by October or November next. The program calls for the enlargement of the present big building, construction of another penstock and the installation of more machinery. The company's reserve water supply in Lake Tapps is more than ample, it is stated, to operate the new unit.

The Simplex Electric Heating Company, Cambridge, Mass., report that they have received large orders for Sunbowl electric heaters for shipment to Japan. These heaters will be used to replace the charcoal burners which have been in use for so long in that country.

The Plains Light & Water Company, Plains, Mont., has announced rate reductions in its lighting schedules. These reductions are now in effect and are the result of the cooperation of the utility company, the mayor of the town and the town council.

Edison Company Orders Largest Synchronous Condensers

The Southern California Edison Company has recently placed an order with the Westinghouse Electric & Manufacturing Company for three 30,000-kva. synchronous condensers with direct-connected exciters and nine 11,661-kva. step-down transformers with starting taps for the synchronous condensers. The condensers will have a maximum capacity of 35,000 kva. and will be the largest in the United States.

One of the synchronous condensers and three of the transformers will be installed in the Eagle Rock substation of the Edison company and the other two condensers and six transformers will go in the Laguna Bell substation. This equipment is similar to apparatus already installed and will facilitate extension of the company's system. The apparatus is designed to lighten the load on the company's transmission lines.

Municipal Power Plant Project Contemplated by Nampa

With a view toward reducing the cost of electricity in Nampa, Idaho, that city is investigating the feasibility of establishing a municipal power plant. A tentative plan contemplates tapping the Snake River near Nampa. Between this point and the proposed plant site is an estimated drop of 18 ft., which would necessitate the construction of a ditch approximately nine miles long to bring water from the Snake River to a point on the rimrock near the contemplated site, an admittedly expensive but feasible piece of work.

At the point of delivery there would be an excess of power, but it is believed that this could be sold for irrigation purposes or disposed of to adjacent communities in the market for power.

Plans for New Hydro Plant Are Announced by Puget Sound Co.

Plans for the construction of a $600,000 hydroelectric power plant on the Sultan River, a tributary of the Snohomish River, by the Puget Sound Power & Light Company, will be completed in the near future, in connection with the company's general scheme for power development in the state, W. H. McGrath, vice-president of the company, recently stated. Application for water appropriation on the Sultan River has been filed with State Supervisor of Hydraulics by the power company, through its president, A. W. Leonard. Tentative plans provide for a timber crib diversion dam, 15 ft. high and 200 ft. long, with a canal 1.6 miles long, and the power plant will have a working head of 100 ft. with a 4,000-kw. unit.

Electric Home Exhibition to Be Held in Boulder, Colo.

Another electric home exhibition is scheduled for the Rocky Mountain region at Boulder, Colo., the second one in that city and the seventh to be featured in Colorado during the past two years. Arrangements have been made by E. S. Henderson, Boulder manager of the Public Service Company of Colorado, with a prominent Boulder building company to feature the first of a number of new homes close to the University of Colorado as an "all-electric" bungalow. Every contractor-dealer in the city has been invited to participate in the project and the assistance of several furniture houses has been offered in furnishing the interior. It is understood that these furnishing firms have interested themselves in a number of pieces of wired-furniture which will be displayed in Colorado for the first time.

Mr. Henderson is out to establish a new attendance record when the home is opened late in January. At the first home, which he built for himself, the attendance represented 40 per cent of the population of the city.

New Electrical Jobbing Firm Opens in Denver, Colo.

The latest firm to take its place in the ranks of Denver, Colo., jobbers is the Elliott-Schmidt Electric Supply Company, recently organized by two well known electrical men in that city. The sponsors of the new company are Roy W. Elliott, who resigned his position as sales manager and purchasing agent of the Albert Sechrist Manufacturing Company after 18 years of service, and K. B. Schmidt, a prominent manufacturers' agent.

Although regular supplies will be handled, it is understood that the new firm will concentrate on the distribution of those specialties previously featured by Mr. Schmidt. Among the accounts announced are those of the Mutual Lamp Manufacturing Company; Sunset Lighting Fixture Company; Hamilton-Ross Shade Company; M. Propp & Company; Northern Electric Company; Frank E. Walcott Manufacturing Company; United Metal Spinning Company; Standard Metal Spinning Company; and the Incandescent Supply Company.

A location has been obtained at 217 Fifteenth St., in the center of a number of contractor-dealer establishments. The new business opened Jan. 2, 1924.

Stone & Webster Building New Cle Elum Substation

Construction has started by the engineering forces of the Stone and Webster corporation on a $160,000 substation at South Cle Elum, Wash., for the Puget Sound Power & Light Company. The improvement will handle the mining and irrigation power loads in the Kittitas valley. The substation will be a 5,000-kw. station, outdoor type, covering an area of about 200 sq. ft. It will be of concrete construction and when completed will be tied in with the system of the Chicago, Milwaukee & St. Paul Railway. Plans for the project and all engineering details were worked out by the engineering department of Stone and Webster under the direction of S. L. Shuffleton, western manager.

The Appliance Sales Committee of the Pacific Coast Electrical Association held a meeting at the Jonathan Club, Los Angeles, Calif., on Jan. 11. At this meeting was discussed the matter of arrangements for the meeting at Del Monte on Jan. 25 and 26 and it was decided to give special attention to the matter of successful retailing of electrical appliances. There will be another meeting of the committee in Los Angeles on Jan. 18, at which time all final arrangements for presentation of papers at Del Monte will be made.

Northwest Lumber Firm Orders Heavy Electrical Equipment

Ten five-ton electric cranes, one of ten-ton capacity, five lumber trolleys, equipped with Sumner type grapplers, eleven two-way switches and 6,000 ft. of track have been ordered by the Long-Bell Lumber Company from the Pawling & Harnischfeger Company of Milwaukee, Wis. Twenty freight cars will be required to transport the machinery to Longview, Wash., the home of the Long-Bell Lumber Company.

Break in Big Creek 8 Penstock Results in Two Deaths

Two lives were lost in the unfortunate breaking of the penstock on Jan. 1, 1924, at the Big Creek No. 8 plant of the Southern California Edison Company at the junction of Big Creek and the San Joaquin River. The accident occurred when the plant was being shut down. The break was in the pipe near the head of the penstock. The two women who lost their lives were members of the families of Edison employees. The cause of the break has not been determined.

Salt Lake Electrical Jobber to Discontinue Auto Supplies

The Capital Electric Company of Salt Lake City has sold out its entire automotive accessory stock, excepting Gould batteries, Tungar battery chargers and Edison miniature Mazda lamps, to the Covey-Ballard Wholesale Company of that city.

The business of the Capital Electric Company will henceforth be exclusively that of wholesaling of electrical supplies. A growing volume of business and consequent need of greater storeroom facilities for the company's major line, are the reasons for the change.

Three railroad companies serving the Pacific Northwest, the Chicago, Burlington & Quincy, the Great Northern and the Northern Pacific, have recently published a small booklet entitled, "Power for Supremacy." The booklet deals with the potential and developed power sites in the Pacific Northwest. The publication is well illustrated with pictures of power projects and the text is devoted to the telling of the story of power development in the territory.

Contract for furnishing steel towers for the transmission line from the Moccasin Creek Power House of the City of San Francisco to the city's substation site has been awarded to the Pacific Coast Steel Company. The towers will be so designed that the power lines will be separated by a gap of 30 ft. The contract sets the cost of the towers at $437,944. Work of erecting the towers will be started within a few weeks.

The Puget Sound Power & Light Company, Everett, Wash., recently completed construction of a power line to serve the Silver Lake and Marysville districts, in Washington, supplying power to 1,000 homes. Power was turned on Dec. 22, 1923.

A contract has been let to the Western Electric Company to rewire the Anaconda, Mont., city hall. The amount of the contract is $1,497.50 and the work will start at once.

Meetings

Denver Meeting Discusses Service and Public Relations

Convincing evidence of ever-increasing interest in public relations work on the part of utility company executives was provided by the first annual Mid-winter meeting of utility representatives, in Denver, Dec. 18, 1923. Almost 100 Colorado, Wyoming and New Mexico operators attended the conference, held under the auspices of the Rocky Mountain Committee on Public Utility Information and the Rocky Mountain Division of the National Electric Light Association.

While various other subjects provided material for a number of addresses and discussions, the dominating theme of the convention was public relations—the most effective methods of imparting public understanding of the utility business. Every company which has systematically undertaken work along this line, and which was represented at the meeting, reported splendid progress.

It was agreed during the convention that there is no other phase of the public utility business which is more important than establishing public understanding. It was pointed out by a half dozen of the principal speakers that, as the people grow to understand the problems involved in providing them with satisfactory electric, gas, telephone and street railway service, it is becoming easier to furnish that service. Service, too, is becoming better.

In undertaking the gigantic task of informing the people of vital matters concerning the utility industry, the utility men themselves have reaped great benefits. In order to properly inform the people, the utility men have necessarily had to inform themselves, often on matters they believed they thoroughly understood, but of which, it developed, they had but slight knowledge.

W. C. Sterne of Denver, chairman of the Rocky Mountain Committee, and Norman Read, general manager of the Colorado Power Company, also of Denver, presided during the series of meetings which occupied a full day's time.

Ben S. Reed, president of the Mountain States Telephone & Telegraph Company; Ernest C. Stenger, receiver for the Denver Tramway Company, and Clare N. Stannard, vice-president and general manager of the Public Service Company of Colorado, were hosts to the visiting utility men.

Los Angeles Electric Club Will Have Annual Banquet

The Electric Club of Los Angeles will hold its annual banquet at the Biltmore Hotel on Saturday evening, Feb. 2, 1924, when an elaborate dinner and dance will be held. Some 400 or 500 members of the Electric Club and their wives, together with representatives of the electrical industry from San Francisco and San Diego, are expected to attend.

Special invitations have been sent to the San Francisco and San Diego Electric Clubs and a large gathering from each of these cities is expected.

The new electric home at Hollywood, which will be in progress of construction at that time, under the auspices of the California Electrical Cooperative Campaign, will be brought prominently to the attention of the visitors on this occasion and will tie in with the annual banquet.

President R. E. Smith of the Electric Club, under whose guidance the club has had a most successful year, during which time many interesting and entertaining features have been produced, hopes to have this the banner event of the year and has appointed the following committee of arrangements: Elbert Kramer, general chairman; J. G. Loomer, arrangements; J. C. Pyle, entertainment; C. H. Paulin, tickets; J. E. MacDonald, program, and K. E. Van Kuran, reception.

Railway Electrification Discussed by Denver Engineers

Electrification of railroads was discussed at the Christmas meeting of the Denver section, American Institute of Electrical Engineers, held on Dec. 21. The symposium was led by Herbert B. Dwight, engineer of the Colorado Public Utilities Commission. The principal speakers were F. C. Hanker of Pittsburgh, general engineer of the Westinghouse Electric & Manufacturing Company, who spoke on "Recent Developments and Future Possibilities of Railway Electrification"; H. B. Barnes, Denver consulting engineer, with a paper on the historical development of the subject; and H. D. Randall, district manager of the General Electric Company, who presented the economic side.

Idaho Chapter of A.A.E. to Meet at Pocatello

Engineers from all sections of Idaho and from several neighboring states will be in attendance at the annual convention of the Idaho Chapter of the American Association of Engineers at Pocatello, Jan. 21 and 22, 1924. The two days will be devoted to the presentation of papers on technical and popular subjects, the discussion of the Association's affairs, and visits of inspection to engineering projects in Pocatello and vicinity.

The Idaho Power Company has extended an invitation to those in attendance at the convention to visit its new hydroelectric development at American Falls which involves many new and original features, and also to inspect its new substation at Pocatello which is now under construction. Besides these, many other recent developments in Pocatello and vicinity will be visited.

One of the principal speakers will be Ralf R. Woolley, hydraulic engineer of the United States Geological Survey. Mr. Woolley will give an illustrated talk on "Boating through the rapids and canyon gorges along Green River to study irrigation and power possibilities of the river."

The American Association of Engineers embraces all branches of the engineering profession in its membership, and the program committee has prepared a program which will cover all parts of the field.

Contractor-Dealers in San Diego Celebrate Christmas

The Electrical Contractors' Association of San Diego celebrated Christmas by a banquet and entertainment, December 21, at the San Diego Hotel, with their wives and daughters as honor guests of the occasion. It was a Christmas party in the full sense of the word, with a Christmas tree, holly decorations, a Santa Claus and everything.

A large Christmas tree stood in the center of the hall lighted by hundreds of colored electric lights. The walls and tables were decorated in holly.

William Boyce was the toastmaster of the evening. Otto Jeancon rendered a vocal solo, accompanied by Mrs. F. Gronberg. Mrs. C. C. Caldwell and George Brown gave readings. The entire group joined in singing community songs.

Thomas Smith was the Santa Claus of the affair, distributing the gifts on the tree. Gifts included rifles and shotguns, diamond earrings, ivory inlaid accordeons, gold bracelets, pearl necklaces, violins, bagpipes, and gold-mounted cigarette holders.

Games were played and the evening ended with a dance in the hotel ballroom.

Rocky Mountain Cooperative League Holds Election

H. M. Ferguson, manager of the Salt Lake division of the Utah Power & Light Company, was elected chairman of the advisory committee of the Rocky Mountain Electrical Cooperative League at the annual election on Dec. 13. C. B. Hawley, manager of the Intermountain Electric Company, was elected vice-chairman, and R. M. Bleak, superintendent of lighting and appliance sales of the Utah Power & Light Company, was re-elected secretary and treasurer.

The following were elected members of the committee (all of Salt Lake City, Utah):

Contractor-Dealers

G. W. Forsberg, manager Wasatch Electric Company
F. C. Wolters, manager Modern Electric Company
E. H. Eardley, manager Eardley Electric Company
G. R. Randall, manager Salt Lake Electric Supply Company

Central Stations

H. M. Ferguson, division manager, Utah Power & Light Company
R. M. Bleak, superintendent, lighting and appliance sales, Utah Power & Light Company
D. C. Green, vice-president and general manager, Utah Power & Light Company
P. M. Parry, commercial manager, Utah Power & Light Company

Jobbers

C. B. Hawley, Intermountain Electric Company
A. J. Callaway, Western Electric Company
J. A. Kahn, Capital Electric Company
J. D. Nicholson, Mine & Smelter Supply Company

Manufacturers

Robert Miller, General Electric Company
W. A. Moser, Westinghouse Electric & Manufacturing Company
B. E. Rowley, Edison Electric Appliance Company
S. S. Stevens, Stevens Sales Company

The Advisory Committee of the California Electrical Cooperative Campaign will meet in Los Angeles, Feb. 1, 1924, the day before the annual banquet of the Los Angeles Electric Club. One of the topics of discussion will be the Hollywood Electric Home which will be opened to the public Feb. 14, 1924.

Manufacturer, Dealer and Jobber Activities

The Baker-Joslyn Company, San Francisco, Calif., has recently been appointed exclusive distributor for the products of the California Wire Company in northern California and in the Pacific Northwest. The new representation became effective Jan. 1. Up to the present time, the California Wire Company has been maintaining a factory representative and warehouse stock at 431 Bryant Street, San Francisco. This office has been closed on account of the appointment of the jobbing house as distributor in the territory.

The National Metal Moulding Company, Pittsburgh, Pa., has announced a new line of sherardized conduit boxes and covers which will be in stock in San Francisco, Calif., on Jan. 1, 1924. Garnett Young & Company are the exclusive distributors for the company and will handle the business in these lines for the Pacific Coast states.

The White Lily Manufacturing Company, Davenport, Iowa, has brought out a new model washing machine which is claimed to be oilless and noiseless. The machine is of eight-sheet capacity and is furnished in either galvanized or copper.

The Standard Electric Stove Company will open its new factory at Goshen, Ind., early in 1924. The new factory will be 1,000 ft. long and 80 ft. wide and will have greatly increased capacity over the present plant at Toledo, Ohio.

The Edison Electric Appliance Company, Chicago, Ill., has announced the offering of a new table stove for immediate delivery. The new device is 6 in. square, is nickel finished with fibre feet, and is of 660-watts capacity.

The General Electric Company has developed a strongly braced cylindrical type of insulated choke coil for lightning arresters, consisting of a coil of bare copper wire, securely braced for the full coil length at three points around the circumference. The coil is mounted on insulators which are supported on a channel iron. The indoor coils have standard General Electric busbar insulators and the outdoor type are equipped with General Electric standard pin type insulators.

The Beaver Machine Tool Company, Newark, N. J., is conducting an intensive sales campaign on its triple-duty line of sockets. This socket permits of the use of three devices on one socket at one time.

Nicholas M. DuChemin has assumed the duties of general superintendent of the West Lynn, Mass., plant of the General Electric Company following the death of William J. Lloyd.

The International Commercial Company, with offices in the Mills Building, El Paso, Texas, has been organized by **R. W. Richards, K. V. DeLacy** and **C. J. DeWeese.** The International Commercial Company will act as manufacturers' representatives, covering a complete line of electrical supplies and radio equipment in the territory embracing west Texas, New Mexico, Arizona and Mexico.

The Ward Leonard Electric Company, Mount Vernon, N. Y., has developed a Vitrohm resistor unit with Ediswan (bayonet lock) base, for use where vibration and jars are likely to loosen the resistor from a standard screw socket. This unit is made for reducing regular line voltage to meet the requirements of so-called "low-voltage" devices, motor-generator sets, etc.

The Elwell-Parker Electric Company, Cleveland, Ohio, has recently placed on the market a new electric industrial truck known as the Hi-Lo Tructor. The new type truck will pick up or deposit a load at any point up to six feet above the floor. The truck will handle a load of 6,000 lb.

Harry Garbutt, of the Westinghouse Electric & Manufacturing Company, San Francisco, had some difficulty in getting his club right end up but he will follow through in approved fashion.

The F. W. Wakefield Brass Company of Vermilion, Ohio, has developed a combination kitchen unit to provide a convenience outlet in kitchens where the only electrical connection is through a single ceiling fixture. The convenience outlet consists of a short channel or trough leading from the fixture canopy close to the ceiling and carrying an ordinary drop cord connected in accordance with Underwriters' rules. The trough is of proper length to give clearance on glassware up to 14-in. diameter.

The Mitchell Vance Company, Inc., New York, N. Y., has recently added to its line of lighting fixtures an enclosed dust proof kitchen lighting fixture designated as Type X.C.K. The unit is designed for use with 150-watt lamps but may be lighted with a 100-watt lamp with equal efficiency. It is furnished either with or without self-contained pull chain switch.

The Crocker-Wheeler Company has recently moved its San Francisco office from 604 Atlas Building to room 907 of the same building. Arthur Purdon, manager of the office, has announced that the company has decided to carry an enlarged stock of motors and spare parts at the Natoma warehouse. The concern will also maintain a service department there.

The Hi-Voltage Equipment Company, Cleveland, Ohio, has recently issued Catalog No. 3. The booklet deals with the company's line of high voltage switches and substation equipment. It is well illustrated and shows applications of much of the apparatus.

The Dewalt Manufacturing Company, Lancaster, Pa., has recently placed on the market a new electrical device called the "Dew-All." The machine is a woodworking device and has many applications.

Ajax Electric Specialty Company, St. Louis, Mo., has announced that its patent applications on No. 22 and No. 33 models of plural plugs have been allowed by the United States Patent Office.

The Doerr-Mitchell Electric Company, Spokane, Wash., will be taken over by the Brown Electric Company of that city. The Doerr-Mitchell Company in addition to electrical merchandising and contracting, has built up a substantial business in the manufacture of electrical lighting fixtures. Their work has taken prizes at a number of exhibits in widely scattered parts of the country.

The Atlantic-Pacific Agencies Corporation has been organized to supersede and take over the business of the Atlantic-Pacific Sales Company, San Francisco, Calif. W. M. Deming is president; T. D. MacMullen is vice-president and C. C. Langevin secretary of the new company, which will represent many eastern manufacturers of electrical appliances, radio supplies, heating equipment, etc.

Arthur Elston has been appointed sales agent for the **Electrahot Appliances, Inc.,** of Minneapolis, Minn., and will make his headquarters at present at 77 O'Farrell Street, San Francisco. Mr. Elston will devote his time chiefly to the State of California, the business of the Northwest being handled by R. M. Burton, Seattle, Wash., with offices in the Alaska Building.

The Spencer Electric Company, Oakland, Calif., has just completed the wiring of the new building for Montgomery, Ward & Company in that city. This is one of the largest jobs ever installed in Oakland and the work was completed within the scheduled time.

"Washer" Wilson, of Los Angeles, Calif., has opened a new store in Tucson, Ariz. This store is located at 326 North 4th Avenue and is the second store to be opened by Mr. Wilson in Arizona, the other being at 244 West Washington Street, Phoenix.

The Hart & Hegeman Manufacturing Company, Hartford, Conn., has recently issued its 1924 Catalog R. Copies can be secured upon application to the manufacturer.

The Hisey-Wolf Machine Company, Cincinnati, Ohio, has brought out a new side handle drill with 5/16-in. capacity. This drill is fully described in Bulletin No. 106-A which will be furnished on request to the factory.

The Kidwell Boiler Company, Milwaukee, Wis., has just issued advance copies of an exceptionally interesting and instructive catalog on steam boilers and steam generation. The book contains 268 pages and treats in detail of steam boiler construction and operation and gives a vast amount of engineering data.

Personals

Franklin T. Griffith, president of the Portland Railway, Light & Power Company, Portland, Ore., has been appointed vice-president of the National Electric Light Association, succeeding the late John A. Britton. Mr. Griffith has long been active in the affairs of the association and has been a construc-

FRANKLIN T. GRIFFITH

tive worker for the entire industry. In his new position he will have unusual opportunities for developing plans and ideas for the betterment of conditions and for the promotion of the general welfare of the electrical business. Having a broad view of western conditions, he will be able to assist in the solution of the problems of that section and will be able to co-ordinate eastern and western views. Under Mr. Griffith's direction his company has made exceptional strides in development and in the promotion of public relations.

W. H. Kaemper, San Francisco manager of the firm of Listenwalter & Gough, was a Los Angeles visitor during the Christmas holidays and reports that his firm is progressing very satisfactorily in the northern city.

C. A. Russell, lighting specialist for the Pacific Gas and Electric Company, San Francisco, Calif., has been made illumination engineer for the same company and will be attached to the San Francisco division.

W. L. Goodwin, operating vice-president of the Society for Electrical Development, New York, N. Y., has returned to that city after an extensive trip to the Pacific Coast.

C. L. Rice, formerly production superintendent of the Hawthorne Works of the Western Electric Company, at Chicago, Ill., and **S. S. Holmes**, general superintendent of installation of the installation department, have been promoted to be assistant works managers at the Hawthorne factory.

R. C. W. Libbey, for nearly fifteen years with the Simplex Electric Heating Company, Cambridge, Mass., has resigned from that company, effective Jan. 1. Mr. Libbey is now in the East in discussion with his new connections.

A. H. Vorum, assistant purchasing agent of the Western Electric Company, New York City, has been a recent Los Angeles visitor.

J. H. Mull, president of Wm. Cramp & Sons, and **W. H. Glocker**, consulting engineer for the same company, are spending some time in San Francisco visiting the organization of the Pelton Water Wheel Company, an affiliation of the parent company.

D. T. Mason, of the Southern California Edison Company, Los Angeles, Calif., was recently in San Francisco on business in connection with his company's activities.

George S. West, for several years connected with Catton, Neil and Company, Ltd., Honolulu, has resigned from that company and has returned to this country. Mr. West has been in the Hawaiian Islands for some time and has not been back to the States since his first departure. He intends to take a short vacation before starting in with his new work and will undoubtedly make his home in California.

C. F. Oehelmann of the Public Service Company of Colorado, Denver, Colo., has been re-elected secretary of the Denver Motor Club and **Guy W. Faller**, assistant vice-president of the company, has been elected to the board of directors of the club for 1924.

D. C. McClure, president of the Rocky Mountain division of the National Electric Light Association, attended the national executive committee meeting of that organization in New York City early in December, returned to Denver and then spent the holidays with his family at Racine, Wis.

J. D. Ross, superintendent of the Seattle city lighting plant, recently spoke in both Aberdeen and Bellingham, before large gatherings of citizens, describing the development of Seattle's municipal light plant and the Skagit River power project. Both cities have under consideration municipal light enterprises.

Wm. A. Johnston, city salesman of The Washington Water Power Company, Spokane, is severing his connection with that company, and on Jan. 15 will enter the service of the Westinghouse Electric & Manufacturing Company at Portland, Ore., as special representative for western Oregon. Mr. Johnston has been with The Washington Water Power Company for ten years, starting in 1913 at Moscow as bookkeeper. For the past seven years he has been in the sales department, and has played a conspicuous part in the great sales campaign of ranges, washing machines, and other electrical merchandise.

M. C. Osborn, district manager of Landers, Frary & Clark, New Britain, Conn., is visiting his old friends in Spokane. Mr. Osborn was formerly commercial agent for The Washington Water Power Company and while in their service first realized the possibilities of the electric range.

George E. Jaquet, who edited the Electrical Directory of Canada for 1923, is now a member of the staff of The Society for Electrical Development. After being graduated as an electrical engineer from the University of Illinois, Mr. Jaquet went with the New York Central and Hudson River Railroad. Subsequently he was with the General Electric Company and the Shawinigan Water & Power Co., Ltd. Recently, Mr. Jaquet has been manager of Philadelphia's first electric home, under the auspices of The Society for Electrical Development.

S. L. Case, insulator engineer for the Westinghouse Electric & Manufacturing Company, San Francisco, Calif., has been in Los Angeles for the past week, looking after the insulator business of that company and brings the report that the insulator factory of the company at Emeryville, Calif., started production on a $25,000 insulator order for the Southern California Edison Company's new high tension line.

S. E. Gates, manager of the General Electric Company, Spokane, Wash., is about to visit their eastern plants, and will be away for several weeks. Although Mr. Gates has a large territory, he finds time to take an active part in civic matters, especially in the Spokane Chamber of Commerce, of whose Industrial Bureau he has presided as chairman during the past year.

Herbert A. Cram, representative in California, Nevada and Utah for Landers, Frary & Clark, New Britain, Conn., is now at the factory making plans for the ensuing year. Mr. Cram will return about Jan. 15.

George C. Cook, special representative of the American Cross Arms and Conduit Company of Centralia, Wash., was a recent Los Angeles visitor and while here was active with the local representatives of his organization, the Western Electric Company, going through this territory.

C. W. Heinrici of Eureka, Calif., has purchased a one-third interest in the Eureka Electric Company. The partnership will now consist of **J. H. Hilficker, Husted Heinrici**, and **C. W. Heinrici**, doing business under the firm name of the Eureka Electric Company, at 36 Fifth Street, Eureka, Calif.

James W. Mahoney, for several years in the auditing offices of the General Electric Company, San Francisco, Calif., has been appointed local auditor for the company. "Jim" Mahoney entered the service of the General Electric Company in their San Francisco office shortly after the fire in 1906 and has been with the firm ever since that time, having

JAMES W. MAHONEY

had various positions. By close attention to the work assigned to him and by conscientious effort he has advanced from one position to another and has earned the responsibilities which have been placed upon him. In addition to his other work he has been the secretary-treasurer of the San Francisco Electrical Development League for the past three years.

A. E. Tregenza has resigned as general sales manager of the Economy Fuse & Manufacturing Company, Chicago, which position he has occupied for the past eleven years, but has not made known his plans for the future.

V. H. Greisser, chief engineer for the Washington Water Power Company, Spokane, Wash., is in the East on an extensive business trip.

Richard Chamberlain, Northwest representative for the Hurley Machine Company, Chicago, Ill., is in Spokane on business for his firm.

J. F. Campbell, city electrician of Pueblo, Colo., was the leader of a "Fireless Christmas" campaign in that city during the recent holiday season which proved of unusual success in that no Christmas tree fires were reported, thanks to his efforts in the use of electric lights.

H. C. Chappell, one of the executives of the Natrona Power Company, Casper, Wyo., and secretary of the Wyoming Utilities Association, was a holiday visitor on the Pacific Coast. He spent Christmas with his son, a naval officer at the San Diego base.

Arthur E. Bacon, newly appointed manager of the electrical department of the Mine & Smelter Supply Company, Denver, Colo., became an electrician's apprentice in Salt Lake City over 20 years ago. First with the Salt Lake City Electric Supply Company, then the Capitol Electric & Manufacturing Company; then with E. A. Eardley, finally he graduated into the supply business with the Western Electric Company in Salt Lake City. Except for a brief period, in 1908, when engaged in special work in the Northwest, the balance of the time has found him identified with the supply business in Denver. From 1908 until 1917 he was with the Western Electric Company, resigning his position in the supply department of the company to become a salesman for the Mine & Smelter Supply Company. With the recent resignation of James W. Ryall as the manager of the electrical department of that company, Mr. Bacon was promoted to the position. He is considered one of the foremost experts in the mountain region on all types of electric signal systems.

ARTHUR E. BACON

L. D. Collins, special Arizona representative of the Western Electric Company, Los Angeles, Calif., has been in Los Angeles for the past few weeks, conferring with the officers of the company in that city.

Dr. F. B. Jewett, vice-president of the Western Electric Company, New York City, has been decorated with the fourth class of the Imperial Order of the Rising Sun by the Emperor of Japan. Notice of the honor has come directly from Sannosuke Inada, chief engineer of the Japanese Department of Communications. In a letter to Dr. Jewett Mr. Inada has written, "The assistance which you and your company are rendering to our government is gratefully acknowledged by this order." The letter emphasizes the aid rendered by Dr. Jewett in the field of telephone engineering. Dr. Jewett is past president of the American Institute of Electrical Engineers.

Al Johnson, superintendent of the street department of the Public Service Company of Colorado in Denver, Colo., was elected chairman of the local chapter of the Doherty Men's Fraternity. **F. F. McCammon** was chosen vice-president and **H. A. Tewksbury,** secretary and treasurer. **O. L. Mackell,** chairman of the Denver Electrical Cooperative League, was elected a member of the board of directors and was appointed chairman of the entertainment committee at the recent annual election.

Albert Elkin, secretary of the Electrical Contractors' and Dealers' Association of San Francisco, Calif., has resigned from that position to enter the practice of law.

Charles E. Thompson, electrical engineer for the John H. Rosseter Company, San Francisco, Calif., has returned from Mazatlan, Mexico, where he installed the most powerful radio station in that country.

J. J. McKenna, formerly assistant general purchasing agent at the Hawthorne Works of the Western Electric Company, Chicago, Ill., succeeds C. L. Rice as superintendent of production, and **W. H. Meese,** supervisor of installation methods and results, succeeds R. C. Dodd as operating superintendent of the company at the Hawthorne Works.

T. P. Ward, of the New York Telephone Company, New York, N. Y., recently visited San Francisco.

Harry Billica, district line materials manager for the Westinghouse Electric & Manufacturing Company, San Francisco, Calif., and who has been spending some time in the Seattle district of the company, has been in San Francisco for a few days and has returned to Seattle.

Ralph J. Cordiner of the Edison Electric Appliance Company, Portland, Ore., is visiting Spokane.

A. F. Moriarity, manager of the Colorado Power Company at Alamosa, Colo., is one of the incorporators of the chamber of commerce just organized in that city.

C. D. White, chief electrician, Potter Oil Company of California, has resigned and the position has been dispensed with. In future the electrical equipment, including thirty oil well pumping motors, lighting and oil dehydrating units, will be cared for by contracting firms. Mr. White, one of the pioneer electricians of California, will try raising peaches on his orchard in Sutter County near Yuba City.

Sydney R. Inch, vice-president and general manager of the Utah Power & Light Company, has been called to New York City to join the executive staff of the Electric Bond & Share Company. Mr. Inch was born in Taunton, England, in 1879. He was educated in England and came to America in 1900, going to work immediately for the Montana Power Transmission Company, a predecessor of the present Montana Power Company. He worked up with this company and the Butte Electric & Power Company and later was made manager at Missoula, Mont., of a group of utilities owned by the late Senator W. A. Clark. In 1912 he became general superintendent of the Utah Power & Light Company with headquarters at Salt Lake City. In 1915 he was made operating manager of the company and in 1918 was made vice-president and general manager of this company and also of the Utah Light & Traction Company, which position he has held until his recent appointment.

SYDNEY R. INCH

Obituary

Edward Entelman, head of the telegraph department of the Southern Pacific Company, San Francisco, Calif., died on Friday, Jan. 11, 1924, after an illness of several months. Mr. Entelman was born July 7, 1877, and entered the service of the Southern Pacific Company as agent and operator at Bethany, Calif., in 1895. He was advanced from one position to another until he was made head of the department, which position he held until his death.

Charles R. Dougherty, for the past three years working in the financial interests of the General Electric Company on the Pacific Coast, died November 27 at his home in Pasadena, Calif., at the age of 51. Mr. Dougherty began his business career when 17 years of age with the Thomson-Houston Electric Company in Philadelphia, in a clerical capacity. He later became cashier of the Philadelphia office and, in 1894, was made auditor of the Philadelphia district of the General Electric Company. In 1913 he was transferred to Schenectady as a general assistant to the comptroller of the company. In 1920 his failing health necessitated his coming to California to live.

Trade Outlook

San Francisco

The retail buying of the holiday and post-holiday season has been exceedingly satisfactory and stocks are now in good condition for inventory. Sales for 1923 were generally well above the normal volume and seasonable merchandise, particularly, was in strong demand.

Rural conditions are reported as generally good, although in some sections slow crop returns have reacted to a slight disadvantage. Recent rains, and the accumulating snows in the mountains, have changed the condition of the stock grower as well as that of many ranchers and future prospects are much brighter in those sections which have been affected by the late water fall.

Fruit conditions are generally good and dairies are reported as being especially prosperous.

Building programs continue in extensive volume and money is available for legitimate development, both industrial and domestic. Bank reserves are heavy.

Exports are not up to normal but prospects seem good and exporting firms are optimistic. Japan is still a heavy buyer of many commodities.

Jobbers are starting the new year with satisfactory inventory conditions and manufacturers are in good position as to future deliveries.

Los Angeles

Electrical manufacturers report excellent business conditions at this time, with an abundance of orders on hand and several for extremely large equipment just closed. Due to the extensive building program under way, very good business is being enjoyed by the jobbers and wholesalers of electrical supplies and wiring devices. Manufacturers of motors, manufacturers of wire, and local manufacturers' agents make excellent reports of activity in their lines.

The fall and Christmas appliance business was the best ever enjoyed by local dealers and retailers in this section. Some types of appliances, particularly waffle irons and percolators, went so fast that manufacturers and jobbers were unable to supply the retailers' demand. Fancy lamps for Christmas trees and art and metal lamps for the home moved well. The sale of radio was much better than for the same period last year, and the volume is keeping up beyond expectations.

Portland

Oregon, in general, and Portland, in particular, have never before had so big a business year as the one just closed, substantial gains being shown in bank clearings, postal receipts, custom receipts and crop values.

Production in the lumber industry reached close to five and one-half billion board feet, a gain of 20 per cent over 1922. The mills are taking advantage of the usual midwinter slump by closing down for extensive overhauling and repairs. Shipments to foreign ports are being maintained in better volume than the domestic orders.

Final figures for the year's building permits issued in Portland are estimated at $25,000,000, the greatest in the history of the city. One of the outstanding features of the 1923 building program was the large volume of homes—about 3,200, costing approximately $11,000,000.

Extensive improvements have been made in the last twelve months in harbor and port facilities.

Central stations of this district almost without exception have carried greater loads and made greater energy outputs than ever before. Extensions and improvements have been the rule everywhere.

Seattle

Figures from the local retailers indicate that holiday selling volume for this year was on an average 10 per cent higher than for a corresponding period of last year, with collections at a much higher percentage during the year than was true of 1922.

Up to December 22, 1923, the mills in the West Coast Lumbermen's Association had cut 5,214,937,274 feet of lumber. Production, sales and shipments all made new high records.

Seattle's 1923 water-borne commerce totaled 6,270,000 tons of cargo, the highest in its history, and three-quarters of a million tons over 1922.

The electrical industry reports an average in the business done in 1923 over last year of between 50 and 60 per cent. The spread between the two years is really greater, due to a price reduction during 1923 of more than 10 per cent. It is expected that a further reduction in price lists will be a stimulating factor in 1924. An outstanding feature of the year's business was the volume of generating equipment placed in the Puget Sound territory. Electrification of lumber mills was one of the principal items of new business. Unusual building construction throughout the year stimulated general electrical work, and the holiday business in appliances was very satisfactory.

Salt Lake City

The year 1923 has been one of great activity in the industrial development of Salt Lake City, the State of Utah, and the entire intermountain district.

In Salt Lake City bank clearings for 1923 exceeded those of the previous year by $110,000,000.

There is a reassuring feeling that agriculture has completely passed its low ebb, and the future looks encouraging.

The Utah Power & Light Company has made improvements and additions during the past year amounting to several million dollars, and contemplates spending a large amount of money each year for the next few years in developing additional power.

The sugar industry has shown marked improvement during the year 1923 over the previous two years.

The iron and coal mines of the Columbia Steel Corporation have been opened and placed on a producing basis. The pig iron plant at Ironton, Utah, has been virtually built during the year, and will be ready for operation early in 1924.

It is confidently felt that the factors which have made for remarkable improvement during 1923 will be reflected in a constant and continuous growth and improvement in all lines of business for 1924.

Spokane

The business outlook for the year 1924 for this section is very good. As compared with the year just closed, industrial plants in general have maintained a higher production level, bank clearings show a substantial increase, there is a greater activity in real estate, and much new work in prospect.

In the Coeur d'Alene district the advance in the price of lead is stimulating production, and it is anticipated that the mines will soon be working to full capacity. There are indications that the Hercules Mining Company may incorporate with other companies controlling a large group of properties.

In the building field, two new moving picture theaters are to be erected and an addition to the Masonic Temple.

The Washington Water Power Company expects to spend $2,000,000 in improvement of its existing transmission lines.

The excellent results obtained in the merchandising of electrical goods last year have led to plans for great activity in 1924. With attractive displays in six electric shops and with the central stations pushing business, the public will have no chance to forget the electrical idea.

There is still a large amount of wheat unsold, indicating the easy financial condition of the growers. The local packing business is in excellent shape. A marked increase in hog raising is noted.

The Western Pine Association reports that the 1923 lumber cut, amounting to 1,750,000,000 ft., and shipments, 1,500,000,000 ft. with a valuation of $50,000,000, exceeded any year since 1910. The mills in the association are nearly all located in the Inland Empire.

Denver

Business of the new year has started in a conservative, gratifying manner. Reports of construction, bank clearings and merchandise sales for the old year were far better than had been generally anticipated earlier in the year.

Building operations broke the record of the previous year by $2,626,155.

Comparisons show that the year just closed ranks second only, in the history of the city, to the big year of 1920, because of war conditions the record year of profits and business.

The electrical industry fared unusually well, the 1923 Christmas sales showing an increase of 25 per cent over the holiday sales in 1922. Figures compiled show a gross business in the territory exceeding $400,000, of which one-half was done in Denver. Included in the sales were 20,000 tree lighting sets, another record.